

ITEMS OF INTEREST.

VOL. XIV.

PHILADELPHIA, FEBRUARY, 1892.

No. 2.

Thoughts from the Profession.

VULCANIZING RUBBER.

There is, evidently, judging from the replies in the December ITEMS, a misunderstanding of Dr. J. H. Boyett's suggestion, in the October ITEMS.

When rubber in the vulcanizer is heated too rapidly, and to a temperature much beyond the vulcanizing point, the sponginess alluded to by Drs. Driscoll and Murphy always results. Dr. Wildman, in 1865, successfully vulcanized a large piece of rubber, by using a low temperature and a long time—being especially careful not to increase the heat too rapidly. (See *Dental Times*, July, 1866.)

If the precaution is observed of slowly increasing the heat—taking, say, one hour to raise it from 280° to 320° —dental rubber can be as solidly and as perfectly vulcanized without as with a flask. Dr. Wildman, earlier than the date named, covered dental instruments with vulcanized rubber, by winding the rubber, slightly warmed, around them, then wrapping around this a strip of muslin on heavy tin foil, and in this condition placing them in the vulcanizer. I have also done the same, and hundreds of times have vulcanized rubber between pieces of glass, tied together with twine, or loosely wrapped in tin foil, or when the object has been merely experimental, letting it float in the water, or laying it on a flask. If the heat is slowly applied, and not allowed to go beyond 320° , it will come out right every time. If any one doubts the possibility of this, I will take pleasure in sending a sample so vulcanized.

Whether there is any expansion of the rubber during vulcanization is very questionable—if it expands at all, it does so only to a very slight extent. There is, however, a very marked contraction when the process is complete. This varies with the composition of the rubber,—the more mineral matter it contains, the less it contracts. It is on this account that the light pink rubber holds more

firmly to the plate in combination work than does the ordinary red. It varies with the temperature; the higher the heat, the greater the contraction. It also varies with the form of the vulcanizer.

A writer of a few years ago, whose article I have so far, since seeing the inquiry in the ITEMS, failed to find, demonstrated the contraction of rubber by a very simple experiment. Using a suitable mold, a perfect cube in shape, in which he packed and vulcanized various specimens of rubber—he found that in all cases the sides were variably concave—showing positively, that there was a very marked shrinkage.*

This is also seen in the space always found under the blocks of a vulcanite case. Slight if the rubber is thin, and larger if there is a greater thickness.

Some years ago, perhaps twenty-five or more, there was on sale at the depots a "dry vulcanizer," merely a modified sand bath, in which the rubber was not under pressure at all. I saw fairly creditable work done in it. It required so much care in regulating the heat, however, it was not a practical success.

The difference of result, due to the form of vulcanizer and the method of applying the heat, is well illustrated by an experiment related in a paper I sent to the American Dental Association at the meeting held in 1886. (See proceedings for that year, page 42.) Two flasks were prepared, each containing two sheets of black rubber formed into a compact mass and imbedded in plaster. One was vulcanized in a Whitney vulcanizer, one hour being taken to slowly raise the heat to 320°. The result was a spongy mass, the plaster having been forced out of the flask, and the flask, a new one of brass, having had its cover badly bent by the force of gas.

The other was placed in the vulcanizing chamber of a Seabury vulcanizer, steam of 120 pounds pressure having previously been raised in the other, the cover screwed down, and the steam, at once admitted by the vulcanizing pressure, being attained in *two* minutes. After vulcanizing the flask was uninjured; the plaster intact; the rubber apparently occupying the same bulk as before vulcanizing. About one-eighth of an inch of the outside was solid and compact; the central portion was decidedly spongy. The rubber, before vulcanizing, in each case made a cylindrical mass of proximately one and one-quarter inches long and about the same in diameter. If I desired to have a mass of rubber like that, perfectly solid, I should take about eight or ten hours to vulcanize it, having the temperature correspondingly low.

William H. Trueman, Philadelphia.

* See Dr. G. W. Snow's article, ITEMS, December, 1890.

EXPANSION OF RUBBER.

I have studied the subject closely within the last two years, making several experiments, and am satisfied that *rubber does expand* during vulcanizing, though in pieces not over one-quarter an inch thick, it is very slight, hardly perceptible. The nicest if properly vulcanized.

Extra heat will expand rubber, and the thicker the mass the more expansion.

In my opinion, broken sections are caused by excessive pressure in closing the flask, and putting the hot flask into cold water. I have examined many sets of block teeth after the flask was closed and before vulcanizing, and where I never found a section broken before vulcanization, I never found one after.

Some claim they have tried vulcanizing without flasking. I have vulcanized many plates in this manner with success, no breaking of plaster or spongy rubber. Take a few experiments.

Experiment 1 :

I take two one-half inch cubes of black rubber. One cube is invested in one-quarter inch plaster, the other is dropped into the vulcanizer without any investment. Both cubes are perfectly vulcanized. The one invested in plaster did not burst the investment, but proves slight expansion by small pieces of rubber forced into the plaster; otherwise, the cubes resemble each other in every respect.

Experiment 2 :

A cubic inch of mottled rubber, invested in two inches of plaster and dried for five days, bursts at 320° with loud report. On opening the vulcanizer I find the investment broken in many pieces, and the cube cracked wide open and expanded.

Experiment 3 :

A mass of mottled rubber one-eighth inch thick, with a piece cut out before vulcanizing, is invested in plaster one-quarter inch thick. The unvulcanized piece is replaced, after vulcanization, showing no expansion perceptible of the portion vulcanized. Plaster was intact.

Of all instruments used by the dental profession, the vulcanizer is the most abused.

Slow-heating and a perfectly tight vulcanizer two-thirds full of boiling-water are the best safe guards against expansion. Blow off first steam generated, thereby liberating the air confined in chamber of the vulcanizer.

Distribute the heat equally on all surfaces. Raise the heat gradually and continue according to the thickness of plate, the thicker, the slower. Never raise above 520° . Let the vulcanizer cool slowly without blowing off the steam. It is a grave mistake to bring the plate up to the vulcanizing point quickly, especially if it is very thick. Rubber is the poorest of conductors. The outer rim hardens before the inner part, thus preventing the liberation of the sulphurous gas.

This is the sole cause of porous and honey-combed rubber. To avoid these difficulties, take longer time to vulcanize. From two to five hours or even longer, according to the thickness of the rubber, to raise the temperature of the vulcanizer from 230° to 320° .

In conclusion, I would say, from my experiments and observations, *rubber does expand*, which I have proved to my satisfaction, but in all cases of ordinary thickness that expansion cuts no figure in bursting plaster and cracking sections if properly vulcanized.

Ira B. Archer, N. San Juan, Cal.

[Does the above prove the expansion of rubber, or the force of the gas generated by excessive heat? Dr. Archer sends us several specimens of vulcanized rubber, which shows great care in his experiments, and are interesting as showing the behavior of rubber under the various conditions mentioned.—ED. ITEMS.]

VULCANIZING WITHOUT A FLASK.

EDITOR ITEMS:—After the plaster is thoroughly dry, coat the models with the rubber dissolved in chloroform, where you wish to use the rubber. After the chloroform has evaporated, warm the rubber of the right size, and with wet finger work it down over the center, holding up the rest of the rubber to exclude the air. "Build up" with warm strips, the same as with wax. In patch-work, if an upper set, dampen the palatal surface with water and fill to top of border with plaster, to prevent the plate springing. Cut away old rubber, leaving the surface rough where you wish to patch. Coat it with the solution and build up with rubber. Heat the teeth, and while hot, press them into their proper places, holding the thumb against the rubber on the palatal side, to prevent it moving inward. Hold them till cool, or dip them into water. With warm knife trim away the surplus rubber, incase in plaster and vulcanize.

I use Doherty's No. 1 Improved Rubber; the thickness of one sheet being sufficient for palatal surface, thus making a plate uniform in thickness.

Test the non-expansion of rubber thus: Take a smooth piece of *dry* plaster, about two inches square and a half inch thick, and coat one side with the solution. Cut three or four pieces out of sheet rubber, an inch square, and "build them up" on the plaster-joint a set of "fours," and while hot, press them into the top piece till the under side of the porcelain gum rests in the rubber, not so much, however, as to force the rubber up between the joint. When cool, cut fine grooves in the plaster at the edges of the rubber, extending them on a line beyond the four corners of the rubber, so as to make a perfect cross in the plaster at each corner. When you have a set to vulcanize place the piece, *just as it is*, on top of the flask, and vulcanize it also. If the manipulations have been perfect, I am *sure* you will find the teeth and rubber in the same position as they were before vulcanizing.

B. T. Radcliff.

HOW TO CARE FOR A HAYES AND SIMILAR KINDS OF VULCANIZERS.

A vulcanizer which is constantly sizzling or "kicking up" in some way, and usually when we are most crowded for time, is enough to tempt the most godly into the use of impious thoughts, if not words. There is quite enough in the practice of dentistry to verify the sincerity of the good Job we read about, without the accession of an unruly vulcanizer.

I have been using a Hayes' vulcanizer for nearly four years, which had been used several years before I got it, and I have never had any new packing for it, nor have I had any trouble with it.

First, before the cap is placed on the pot, I take a cake of cheap laundry soap, which has plenty of rosin in it, from a saucer containing a little water to keep the under surface of the soap moist, and rub the softened portion around on top of the pot, leaving a thin film of soap. Then I slowly revolve in water a few times the cap which contains the packing, to get the packing well moistened; then place it on the pot and revolve around once or twice, to thoroughly spread the soap. Soap and water seem to soften the surface of the packing, and when it is heated, the rosin in the soap

cements the joint. Do this every time the vulcanizer is used and you will soon have no more trouble from steam escaping.

Next, screw on the collar and with fingers and thumb screw down the set-screws as tight as possible in this way; then with the wrench turn each screw just a little at a time until they are all brought to bear on the top with a heavy and equal pressure. Release the pressure in like manner with the wrench. With these precautions the cap will not be sprung out of shape, nor will the packing become uneven as a consequence.

The next, and I believe the most important feature, is the stove on which it is used. The "Union" kerosene stove, or similar kinds, which have a sheet-iron collar into which the vulcanizer rests, I believe to be wholly impracticable. This sheet-iron collar is so constructed and situated as to cause the greater part of the heat to circulate upwards directly against the rim of the pot, which presses against the packing. This rim, having but little or no water next to it, becomes almost red hot and burns the packing.

Any ordinary kerosene stove without a sheet-iron collar, such as a "Tom Thumb," "American," etc., with a large wick, is far preferable. Set your vulcanizer on one of these, and the packing will be at a safe distance from the heat, and you can carry on the vulcanizing as fast as you desire.

It would be an easy matter to so construct a sheet-iron collar that would prevent the trouble I mention; then we would have an ideal stove for vulcanizing.

A "Tom Thumb" or an "American" kerosene stove is a very handy thing to have in a laboratory. For one unskilled in casting metal dyes, such a stove is indispensable, as the heat is just strong enough to melt the metal, and not strong enough to over-heat them.

Also useful for waxing up teeth to keep the model and the whole of the wax at a uniform temperature where the wax will mold as you desire.

P. R. James, D.D.S.

OPEN-FLAME GAS FURNACE vs. MUFFLE FURNACE.

In the November issue of *ITEMS OF INTEREST*, C. H. Land, in an article on "Gas Furnaces," says (p. 681): "I have seen what amateurs pronounced perfect work done with an open flame, but have not known of anyone of experience being deceived by such sickly-looking results." This is so misleading, and so far behind

the times, that, in justice to myself and to the members of the dental profession, I feel that an answer, and an emphatic one, is called for.

After an experience of nearly forty years with muffle furnaces, I can well support a claim of being more than an amateur. Moreover, I claim to produce as natural looking a tooth, baked in an open flame, as can be produced by any muffle furnace.

The muffle furnace of forty years ago was the size of a half barrel, consumed a bushel of coal, and required an hour and a half to reach the baking point. This furnace I used till 1867, when the idea of reducing its size, and changing the fuel from coal to coke, occurred to me. I made two furnaces; one from a simple cylinder stove, carrying the medium-sized muffle, which was large enough to bake a full set of teeth, and requiring but a hod and a half of coke for fuel, and baking in one hour; the other, the shape and size of a man's silk hat, had a capacity for baking six or eight teeth, with but a small hod of coke, and baked in forty-five minutes. These two furnaces were used till a few years ago, when it was found that illuminating gas, used as a fuel, was sufficient to bake the hardest porcelain, and I began to experiment in the open flame, and finally succeeded in constructing a furnace which baked a beautiful specimen, *ungassed*. Since that time, all my baking has been done in this manner, and the results, using the same bodies and enamels, have been as perfect as any produced by the muffle furnace.

Let me state what the furnace is and what it will do. It is about the size and shape of a large pineapple; it bakes a set of teeth in ten minutes; and one furnace, still in use, has been baked in upward of 500 times. There are several hundred in use to-day, and the demand is increasing. They have been used by the Harvard Dental School and the Boston Dental College for two years, and about New England the old muffle furnaces have been generally discarded.

The teeth baked in this open flame *do* "present that rich color and translucency equal to the products from either coal or coke furnaces," and they *do* "obtain the same toughness." For continuous-gum work and porcelain fillings the open-flame furnace is far superior to the old and clumsy muffle furnace. It is so simple that "the office boy can easily control it while your valuable time is at the head of affairs." No man, qualified to judge, who has seen the work done with this furnace, has seen any "sickly-looking results."

W. I. Thayer, Boston.

AFFECTIONS OF THE SALIVARY GLANDS.

Foreign bodies in Wharton's and Steno's ducts, strictures of these ducts from continuity of surface with inflamed oral mucous membrane and the consequent injuries to the glands, the remedial agents, both surgical and medicinal, employed in their treatment, are the subjects I desire to bring before you.

It is unnecessary to review the anatomy of the salivary glands more than to say that they are in close relation with most important structures, and that disturbances of their function may lead to serious consequences.

Obstructions of a salivary duct quickly manifests itself by distension of the gland from which the duct leads, followed by pain. More specially is this the case with the parotid gland, whose grape-like lobes fill to their utmost with their secretions, and then the strong, fibrous sheath, which incloses it, makes further distension difficult—hence the pain.

Stoppage of the salivary ducts may be caused by strictures following inflammation of the gland.

Salivary calculus is not infrequently deposited within the ducts preventing the evacuation of the glands. A careful examination of them may reveal the presence of a small seed which had made its way into the duct and had served as a nucleus, round which the phosphate of calcium formed.

Calculi are sometimes found in the substance of the glands, but far more frequently in the ducts.

Salivary calculi may obstruct the ducts by forming in them, and by arresting the egress of the saliva from the gland, establish inflammation of the glandular substance and terminate in salivary fistula or suppuration. Deposits of salivary calculus on the lower incisors may be so extensive as to occupy a great part of the space beneath the tongue, and Wharton's and Rivinian's ducts may be closed in consequence of inflammation and adhesions established by contact with these deposits.

Closure of the salivary ducts may be caused by strictures anywhere along their tract. These strictures may be the sequels of parotitis, the eruptive fevers or stomatitis.

DIAGNOSIS.

Examinations of the mouth should be made in a strong light.

If a salivary duct be closed and the gland enlarged and diseased the condition may be recognized by the phenomena presented, and by digital examination.

The mucous membrane should be dried by means of lint and a close inspection made of the orifice of the duct. A small silver probe should be introduced into the duct, when calculi will be discovered if present. One forefinger placed in the mouth and the other manipulated over it outside of the cheek will often enable the operator to detect calculi.

Small calculi may be removed from the orifices of the ducts in favorable cases, but more frequently they must be removed through incisions which should always be made within the mouth.

Strictures of the ducts from inflammatory adhesions are to be treated by dilating them by the use of graded silver probes.

Setons may be advantageously employed for the purpose of drainage, when the function of Wharton's and Rivinian's ducts cannot be reëstablished. What serves the purpose better is a soft, flexible silver perforated tube passed through the tissues and bent around so that one end will telescope over the other and form a ring. This perforated ring will serve as a means of drainage, besides it is free from the objections of the seton; it does not irritate the tissues when properly inserted.

Ranula has been so long confounded with dilation of the sublingual gland from stoppage of its duct, that many are of the opinion that the soft, bluish fluctuating enlargements beneath the tongue is the dilated gland.

Inflammation of the salivary glands should be treated on general principles; hot fomentations to the parts, aperients when required, and rest.

Suppuration of these glands is not of frequent occurrence. The discharge of pus from the duct of Steno is by no means positive evidence that the parotid gland is suppurating. More frequently the pus comes from the lymphatics which lie about the base of the gland and within its sheath, finds its way quite readily into the duct of Steno and thus makes its escape. Chronic lymphatic abscesses may exist in this region a long time without exciting anxiety by the patient, or even attracting his attention beyond a puffing up of the face at the location of the abscess. This puffing is usually observed on rising in the morning. A little pressure on the swelling will evacuate the pus cavity and no inconvenience seems to be experienced during the day.

The cause of these abscesses are the same as those which produce enlargements and abscesses of lymphatic glands in other parts of the body. And the affections are often aggravated by the stoppage of Steno's duct.

I have previously stated that disease of the parotid gland may be caused by an arrest of the flow of saliva from stoppage of the duct of Steno. The lymphatic glands so quickly sympathize with neighboring tissues subject to inflammation that they too take on inflammation owing to continuity of surface with the parotid, and it is unnecessary to say that the lymphatics are more prone to suppurate than the parotid gland. The treatment of these lymphatic abscesses, situated at the base of the parotid gland, should be pursued with great care to avoid disturbances of the delicate glandular structure of the parotid. After dilating the ducts, a syringe with a long silver point may be used and a solution of boracic acid in warm water carried into the duct and the cavity thus cleansed.

Peroxide of hydrogen should *never* be carried into these cavities until all pus and blood, has been removed.

Peroxide of hydrogen should never be carried into any cavity which is filled with pus or blood. Such cavities should be evacuated by irrigating with warm boracic or carbolized water, after which peroxide of hydrogen applied serves a most important part in oxidizing and removing septic matter which may cling to the walls of the cavity.

The prognosis of these abscesses is favorable. General medication should not be neglected. Alteratives and tonics are indicated in conjunction with local treatment.

—T. W. Brophy, in *Review*.

PYORRHEA ALVEOLARIS.

There are mainly two conditions present in pyorrhea which distinguish it, in a curative sense, from the others. It attacks a more vulnerable point, so far as the safety of the tooth is concerned, and it is more intimately associated with constitutional conditions.

The former simply calls for earlier interference on the part of the dentist, and the latter for proper attention to general hygiene. The reason why so many teeth are lost from pyorrhea is partly because the disease is not recognized so early by the patient as is decay, and partly because practitioners ignore the necessity for constitutional treatment. It is folly to expect a perfect return of the tissues to health while the patient's system is in a debilitated condition, or where the vitality is constantly being lowered by some drain on the system. In cases where there is an evident relation between pyorrhea and general debility it is necessary to tone up the system in conjunction with the proper amount of stimulation to the gums.

The question as to what constitutes a cure must remain a matter of individual opinion, and at the outset we probably had better state our idea of a cure. If a case presented in which the gums were purple around the teeth, and pockets were plainly perceptible, with a free discharge of pus on pressure, and where the teeth were beginning to loosen in their sockets and were sensitive to the touch—if a case of this kind presented and in a few weeks yielded to treatment so that at the end of that time the gums were of a healthy color and firmly compressed around the necks of the teeth, the flow of pus completely checked, and the teeth partially (though seldom perfectly) restored to their original firmness; and if this case came into the office in one or two years, and there was no recurrence of the trouble, we should, in our judgment, call that a cure. The physician does not usually wait that long to claim a cure, nor does he admit his ability at fault if a patient occasionally has a relapse.

We cannot claim to put the mouth in as perfect a condition after a severe case of pyorrhea as it was before the disease attacked it, neither do we leave the teeth as strong after filling as they were before they were decayed. But that we are in many instances able to attain the measure of success indicated by the foregoing case is as true as it is that we save teeth by filling; and this fact should encourage those who have begun to class pyorrhea among the incurable affections to look a little more closely into the methods of treatment.

In the local treatment it goes without saying that all deposits on the necks and roots of the teeth should be removed, and this in many instances is a procedure which extends over several sittings and which cannot always be perfectly accomplished till the gums have been reduced by an astringent, so that—with a thin instrument—they may be held away from the neck of the tooth in the search for deposits, without bleeding. From time to time, during the treatment, examination should be made for calculus, lest any small particles be left as nuclei for further trouble. If any one pocket seems more stubborn than the others, diligent search along the root—often deep under the gum—will usually reveal a deposit to account for it. Cleanliness is the first requirement, and should be strictly attended to.

In the use of astringents we are inclined to think that practitioners have not used them in sufficient strength to obtain the best results. The one we have found to answer the best purpose in the majority of cases is the iodide of zinc, recommended years ago by Dr. Harlan. Instead of using it in solution, we have employed the

crystals, working a minute quantity under the free margin of the gum and into the pockets with a flexible thin scaler. We have seen no ill results from using it in this form, though in some instances it causes slight pain for a few moments after the application. A very small amount is sufficient for each pocket if thoroughly brought into contact with the diseased tissue, and a sufficient dilution for penetration is obtained from the natural moisture lying under the gum margin.

The frequency of the treatment must be regulated by the condition of the case—every other day being as often as is advisable in any instance, and this extended to a longer period as the case progresses.

Whenever constitutional treatment is called for it should be in the line of raising the vitality, and checking any undue drain on the system. The means employed among the most advanced practitioners for toning up the health seem to tend more in the direction of advising change of air and scene, and prescribing regularity of diet and exercise, rather than to the free administration of drugs. Medicines—more's the happiness—are no longer poured into people so plentifully as in former times, for which the profession of medicine is to be thanked.

If each case of pyorrhea is treated judiciously, and a sufficient study is given to its peculiarities, we will see an encouraging measure of success.

There is one condition found in the mouth, however—quite as disastrous in its results—which must not be confused with pyorrhea, but which apparently is often considered in the same light. We have never seen a sufficient distinction made between these two affections. Pyorrhea calls for a flow of pus. The alveolus is apparently broken down by a suppurative process, and there is an outlet at the gum margin through which the pus may be forced by pressure. In this other affection we find no discharge whatever, and the gum appears uninfamed and healthy. It is normally attached to the neck of the tooth, and there are no pockets. But the tooth gradually loosens till there is apparently no process of bone supporting the root, and the tooth may be moved back and forth, carrying the gum tissue with it. This lack of support finally results in loss of the tooth, though in many instances teeth in this condition may remain in the mouth for years. This latter process, instead of being a suppurative one, seems to be an absorptive one. The alveolus is absorbed in some manner without the occurrence of pus, and we are, in the presence of this disease, more helpless than with true pyorrhea.

—*Ed. in Review.*

REST AND RECREATION.

To the charge which has been made in connection with the Hastings disaster, that Chauncey M. Depew spends too much time outside his duties as president of the Central Road, Mr. Depew says :

" I have closed my twenty-fifth year with the Central Railroad, and in that quarter of a century I have been in touch with every part of its business, and every condition of its development. Though blessed with physique and health and capacity for work accorded to very few men, I early made up my mind—from observing the men who have broken down around me and gone to pieces—that the only safety was in variety of occupation ; that unless a man could relieve the strain by excursions into other fields, and specially such things as would keep up his cheerfulness and hopefulness, he was gone."

After citing the means of relaxation adopted by a prominent banker and by a railroad president, Mr. Depew said : " I care nothing for cards, take no interest in games of chance, and at first used to spend my evenings, late in the night, in continuing the business of the day. Of course, that produced sleeplessness, and in a short time led to an overstrain in one direction of the same brain fibers, which destroyed their elasticity and resulted in bad judgment and poor work. It is for this reason that the extremely busy man can do better the next day if, after his business hours, he can switch his mental machinery off to some channel which gives rest and recreation. Happily for my critics, and equally fortunate for my health, my recreation is mental labor in other channels than business, which are public and widely advertised, while the railway president or banker who passes his evening at his club, or with the card party in his house, is free from criticism, because the public are wholly unaware, and, therefore, they don't care how he passes his evenings."

Mr. Depew spends much time in his office, but he urges that it is a misapprehension to estimate a man's value by hours.

" I know plenty of business managers," he says, " if they were not ably assisted would ruin the properties which they control, even if they gave eighteen out of twenty-four hours to the service. I know others of such comprehensive and executive genius that, with three hours a day, they will make any business a success. Commodore Vanderbilt was the greatest business success the world has ever known. He made about a million and a half a year for every year he lived, counting from his birth. He always

closed his business day at 2 o'clock, and there never was any business so important that he would give it any attention after that hour. He drove in the afternoon his fast horses, and devoted the evening absolutely to recreation and pleasurable amusements. He always claimed that his judgment was very much better and his success largely due to these habits. I believe that a man of large executive endowments, who is properly educated and trained, has the faculty of selecting efficient and loyal subordinates, and the greater faculty of instantly turning his mind and concentrating all its resources upon the business in hand, can successfully manage several important business concerns and still have time for his family, his friends and the public."

In conclusion, President Depew refers to the large share of New York's traffic handled by his road, and then says: "I do not claim that my speeches produced this result or any considerable portion of it, but the passenger agents, both of the Central and rival lines, tell me that they notice an appreciable difference in travel by our lines, as the public appearances of the president are more or less frequent."

—*Ledger.*

HOW GAS CYLINDERS ARE MADE.

The supply of compressed gas in metal cylinders has now assumed the proportions of an important industry, more specially since it was found possible, by the Brin process, to obtain oxygen direct from the atmosphere. The industry is not exactly a new one, for carbon dioxide and nitrous oxide (the latter for the use of dentists), have been supplied in a compressed state for many years. Now, with the creation of the modern amateur photographer, who can make lantern slides, and the more general adoption of the optical lantern for the purposes of demonstration and amusement, there has arisen a demand for the limelight such as was never experienced before, and as the limelight is dependent upon the two gases—hydrogen and oxygen—for its support, these gases are now supplied in large quantities commercially. At first the gas-cylinders were made of wrought-iron; they were cumbersome and heavy, and the pressure of the inclosed gas was so low that a receptacle to hold only ten feet was a most unwieldy concern. But times have changed, and a cylinder of about the same size, but half the weight, is now made to hold four times the quantity of gas at the enormous initial pressure of 1,800 pounds on every square inch. This means the pressure which an ordinary locomotive has

to withstand multiplied by twelve. The change is due to improved methods of manufacture and to the employment of mild steel of special quality in lieu of the wrought-iron previously employed. The cylinders are now made without joint or seam, and the process of manufacture is most interesting. A short time ago we had an opportunity of watching the various necessary operations involved in making these cylinders at the Birmingham works of Messrs. Taunton, Delamard & Co., by whose courtesy we were enabled to make notes of the progress.

Beginning with the raw material we were shown a disk of metal measuring thirty inches in diameter and three-quarters of an inch in thickness. From such a "blank" a cylinder destined to hold 100 feet of compressed gas can be constructed, and the first operation is to heat the "blank" in a furnace, and afterward to stamp it into cup-like form. To all intents and purposes this represents the end of a finished cylinder, but it is far too bulky to form the end of one of the size indicated; indeed, it in reality contains enough metal to make the entire vessel. By a series of operations it is now heated and drawn out longer and longer, while its thickness diminishes and its diameter grows less. These operations are carried out by means of a number of hydraulic rams, which regularly decrease in size. The plunger may be compared to a finger, and the cylinder to a glove, while the well may represent a hole into which both are thrust in order to reduce the thickness of the glove. With huge tongs the cylinder, fresh from the furnace, is placed in position, but just before the plunger presses into the red-hot cup, one of the workmen empties into the latter a little water, so as to partially cool the bottom, and prevents its being thrust out by the powerful plunger. Oil is also used plentifully, so that as the plunger works slowly down the red-hot mass, it is surrounded by smoky flames. It presently forces the cylinder into the well, and when the end of the stroke is reached, a stop-piece is inserted through an opening in the upper part of the well, so as to arrest the edge of the cylinder while the reverse action of drawing out the plunger is proceeded with. Directly the finger is drawn out of the glove—in other words, immediately the plunger is raised out of the cylinder—the latter drops down below with a heavy thud, still in a red-hot condition.

This operation of hot drawing is repeated again and again in rams of diminishing size until the cylinder assumes the diameter and length required. This hot drawing leaves the surface of the metal marked with longitudinal lines, not unlike the glacier scratches on a rock, albeit they are straighter and more regular.

But the next operation not only obliterates these markings, and gives the metal a smooth surface like that of polished silver, but it also confers upon the material a homogeneity which it did not before possess, and without which it would never bear the pressure which it is destined to withstand when finished. This operation consists in a final application of the hydraulic ram while the metal remains perfectly cold, instead of red hot, as in the previous cases.

As the result of these various hydraulic operations, we have a perfectly formed cylinder closed at one end, and we now follow it into another department of the works, when its open end is once more brought in a furnace to a red heat. The object of this is to make the metal soft while the shoulder and neck of the vessel are formed. To accomplish this, the heated open end of the cylinder is laid horizontally upon a kind of semicircular cradle, and is held there by tongs handled by two men. Another workman places over the open end a die, and while the cylinder is slowly turning around in its cradle, two sledge hammers are brought down with frequent blows upon the die, closing in the end of the cylinder, but leaving a central hole. Further operations reduce the opening still more till it is closed, and a projection is formed. This projection is now bored through, and the cylinder is ready for testing.

The cylinder is submitted to a water test, the liquid being forced in until the gauge shows a pressure of two tons to the square inch. Cylinders have been known to give way under this ordeal, but without any dangerous consequences. The metal simply rips up, making a report, at the moment of fracture, as loud as a gun. The wonderful strength of the metal employed may be gauged by the circumstances that the walls of the cylinder designed to hold 100 feet of gas are only five-sixteenths of an inch in thickness.

During the manufacture of the cylinder, as we have already indicated, much oil is used, and so far as steel can be saturated with that fluid—in the popular sense—the metal is in that state. It is essential that this oil should be completely got rid of, and this is carefully done before the cylinder is charged with gas. Previous to such charging, the vessel has to be fitted with its valve. Of these valves there are three kinds, known respectfully as the Brin, the Birmingham, and the Manchester. Each has its admirers, but we cannot here discuss their individual merit.

The charging of these cylinders is brought about by a powerful pump having three cylinders so arranged that the compressed contents of the first cylinder are still further compressed in the second, and still more highly in the third. The filling of a 100-foot cylinder occupies about half an hour. —*Photographic News*.

ANTRAL ABSCESS AS A RESULT OF ALVEOLAR ABSCESS.

Before entering into the details of this subject, it may be well to review a portion of the anatomy and physiology of the antrum and the parts associated with it, for the purpose of refreshing our minds.

The antrum of Highmore is an irregular, triangular-shaped sinus, situated in each of the superior maxillary bones, with its base facing the nose, and its apex the malar process. The floor of the orbit is its roof, and the alveoli of the molar teeth its floor; its only opening is a small foramen, starting from its base or nasal aspect, opening into the middle meatus of the nose, and has as its boundaries portions of the turbinated, ethmoid, and palate bones. The size and shape of the sinus varies to quite an extent in different individuals; there is often a marked difference in the right and left sides of the same individual. It is said that the average-sized antrum will contain about one and a half fluidounces. It is larger in the male than in the female, having thicker, stronger walls. In an adult it diminishes in size as age advances or if the teeth are lost.

Sometimes, septa of bone is found in the floor of the antrum, which, in case of disease, add much to the difficulty of its treatment.

It is lined with a mucous membrane, which is continuous with that of the nose and the mouth. The antrum, in a normal state, indirectly communicates with the frontal sinus through intermediate cavities, known as the ethmoidal and sphenoidal cells, and the mucous lining of the antrum is also common with these cavities.

The mucous membrane lining these cavities is made up of ciliated cells, a provision of nature by means of which the antrum is enabled to rid itself of secretions which would otherwise accumulate and become offensive.

The relationship which exists between the teeth and the antrum has been found by many of us to be a close one, as in many instances the roots of some of the teeth penetrate the floor of the antrum.

There are many lesions which the antrum is heir to, but the one most frequently met is the result of a broken or abscessed tooth, usually a second bicuspid or first molar. There may not be much pain in the teeth, but there is a sense of fullness, a pressure in the face which, as the engorgement increases, becomes almost unbearable. A sense of fullness and pain is also very pronounced in the frontal sinus.

With these symptoms in view, the first consideration is to remove the root or tooth, which we will suppose has abscessed, the pus from which has found its way into the antrum. This will usually afford an opening through which the accumulation of pus will find an outlet, when the pain will generally subside. But the treatment does not end here, for till nature has made the necessary repairs the secretion of pus will continue, and it is imperative that the opening be large enough to accomodate a tube of gold or silver, which shall be at least one-quarter of an inch in diameter. After the drainage-tube is in place, a clasp-plate should be adjusted to the adjoining teeth, which will serve to keep food from finding its way into the antrum.

Where trouble has existed for some time prior to treatment, necrosis is liable to be present, and should be carefully looked for. If any, it is usually found near the tooth or root which has given rise to the trouble, and in this location is easily removed by use of the dental engine. If necrosis is suspected of having made any progress within the antrum, a simple means of detecting it is to stuff the cavity full of absorbent cotton, allowing it to remain till it has swollen by the moisture it will absorb, and fills the cavity in every part, when it may be removed. If there be no necrosis, the cotton will not pull apart and catch on to the walls of the antrum, as the mucous membrane will be unimpaired, and there will be no exposed and rough surface of the bone to become entangled in the fibers of the cotton, as would be the case should necrosis exist. However, anyone with sufficient experience can, with a probe, readily detect necrosed bone, but I consider the cotton, in the hands of the inexperienced, the safer and more reliable.

Now the question arises, How shall we deal with the necrosed bone? Sometimes it may be necessary to make the opening sufficiently large to admit of its removal by surgical means, but generally this is not necessary, for, by administering systematically a tonic treatment, such as sirup of hypophosphites or cod-liver oil, and wholesome diet, in conjunction with local treatment, which shall be stimulant and disinfectant, the sequestra will be exfoliated and repair will take place without an operation. Our homeopathic brethren claim gratifying results from high potencies of *silicia*, *calcaria carb.*, and *phosphorus*.

The progress made when long standing is often very slow, sometimes requiring several months of careful and persistent treatment; while those which are taken in hand in the early stages are by far less obstinate, and the possibility of effecting a permanent cure is proportionally more flattering.

I have no doubt if we were to examine the sockets of all the superior first molars we extract, that the numbers whose roots are found to perforate the floor of the antrum would astonish us, and we would marvel that there are not more cases of antral abscesses than there seem to be.

I am led to believe that in not one case in ten, antral abscess follows the extraction of a tooth whose roots perforate the floor of the antrum. The temperament, general health, and recuperative power of the patient have a very strong bearing on this point.

Nasal catarrh offers serious resistance to the treatment of what might otherwise be simple, specially in this damp climate. Owing to the catarrh, the mucous membrane of the nose becomes hypertrophied, closing the natural outlet of the antrum, thereby rendering it impossible to close the artificial opening. Moreover, the inflammation is more difficult to control. It is well understood that an inflammation once begun in the mucous tract has a tendency to spread and involve other organs having the same lining.

For example, a child who is erupting teeth has an inflammation, which is, at first, circumscribed, of the gum-tissue surrounding the tooth about to erupt. Gradually it becomes diffused, affecting the mucous membrane of the mouth and fauces, and in many instances the whole mucous tract, causing diarrhea, convulsions and sometimes death. The mucous membrane of the antrum bears a similar relation to that of the nose. The mucous membrane of the antrum is low in vitality, as a result of the abscess, and has no power to resist the inflammation from the nose. As a consequence, we have a stubborn lesion to deal with.

In his system of oral surgery, Dr. Garretson states that "The antrum once fully and fairly opened in the floor region, a practitioner is not to attempt its closure. As a rule it will not close, and the writer's experience impresses him that closure, as a rule almost without exception, is the worst thing that can happen. Once fairly exposed by a break in its floor, an antrum never again physiologically voids itself through the nose, the reason for this being that the ciliated expression of the antral mucous membrane has lost its office as a result of the disease that caused the opening."

This statement does not apply to cases where teeth have been extracted, whose roots have penetrated the floor of the antrum, where no disease existed prior to the extraction of the tooth, for, as a rule, these cases will readily close, provided the outlet into the nose is unobstructed. Hence the importance of getting the catarrhal affection under control at the earliest possible moment. When patients present themselves for treatment they are usually more or

less run down systemically, as the result of suffering, loss of sleep, absorption of pus, and the consequent loss of appetite. They should be placed under tonic treatment, as before described, and should take plenty of exercise in the open air. Their diet should be that which is most wholesome and nutritious.

In the local treatment of this condition, cleanliness is of the first importance. The chances of recovery are far more encouraging where cleanliness alone is observed, than where the most skilful medication is practiced without regard to cleanliness.

The remedy for cleansing purposes which has proven most efficacious in my hands is Marchand's peroxide of hydrogen, thrown into the cavity by means of a syringe. This should be followed by injections of a solution of sulphate of zinc, one or two grains to an ounce of water. If there should be much pain, one or two grains of chloral may be added to each ounce of the solution. There are other remedies which may be equally good, such as a mild solution of carbolic acid in glycerine and water, listerine, or sanguinol, used with an atomizer. Some practitioners advocate the use of sulphuric acid, creasote, nitrate of silver, and other escharotics. There may be cases in which they are indicated, but experience of others has taught me that they do more harm than good. We can easily appreciate that where we have an unhealthy granulation these remedies come in very happily where judiciously applied, their use to be followed by mild stimulant and tonic treatment.

Antral abscess, like chronic periodontitis, demands slow and persistent treatment, with mild, soothing medicaments.

—Dr. M. O. Cooley, in *Cosmos*.

STATE BOARDS AND THE PROFESSION.

All agree that dentists should be better educated. National law provides that the several States of the Union shall each make its own laws for the regulation of the conduct of its citizens. Accordingly each State has enacted its own law regulating the practice of dentistry. People do not judge a profession by its brightest lights, but by its members in the aggregate. Therefore, the people for self protection demand that the standard of dental education shall be sufficiently high to indicate that the possessor of its diploma is qualified and trustworthy.

If this idea was properly enforced when a student entered college, and all through his course he was closely scrutinized, and not graduated till qualified, the diploma of a dental college would have some significance. While the States do not supervise the work done in the colleges, some of them review it by requiring

graduates to pass an examination before their State boards before allowing them to practice. This is an additional safe-guard for the people, and it is equitable to all concerned. It protects the college which is doing honest work, and compels the mere money-making organizations to take better ground than they otherwise would. State boards also exercise an important function in protecting the people from charlatans and tyros. The charge has been made that these boards are generally appointed through political influence and are liable to be incompetent if not corrupt. I have never known of an obscure, unintelligent or dishonorable man being appointed to one of these boards. Just discriminations are made between the work done by the large number of competent teachers and that done in schools run by unqualified pretenders on the money basis only. This the profession and the public expect from State boards. Dental schools have unreasonably increased during the past few years; and the standard in some is so low, the people have been compelled to protect themselves by establishing, at least, minimum requirements. Many think some States have gone too far and require too much. But, in most States, the requirement falls short of what it should be. The profession, instead of finding fault with the work of these boards, should support and sustain them. Recruiting the future dental profession must be done with more circumspection; and if only qualified men are allowed to enlist, it will be impossible for politicians to appoint unqualified men on examining boards. The mere possession of a diploma, though from a regularly chartered institution, brings no vested right. The people have the right to demand that the professional man who is licensed to practice shall be fully qualified. I think every State should do so, if for no other reason than that colleges which are doing disreputable work may be exterminated.

It is charged that State examining boards assume greater virtue and knowledge than college faculties. This is not true. State examining boards do not attempt to impart instruction, and they, in comparison, do only what the county examining boards do for candidates for teachers in the public schools; where graduates as well as non-graduates, even of schools maintained at public expense entirely, are subjected to the same examination. If it is necessary to examine the graduates of publicly maintained institutions, how much more is it necessary with graduates of schools maintained and supported by student's fees. The dental profession must support and sustain its State examining boards, if it cares to be considered a respectable profession and have the confidence of the people.

—Prof. I. N. Pierce, in *Ohio Journal*.

OHYPHOSPHATE.

Oxyphosphate is invaluable both for permanent and for temporary purposes. As much depends on the manner of manipulating the material, I will explain how best to mix it. According to the method of mixing, the resulting mass will be either quick or slow setting, and either dense or crumbly.

First, then, as to its setting. The best mixing slab is the side of a flat glass bottle, which should be provided with a tightly-fitting rubber stopper. In the winter months, with the temperature of the room at 70° F., the bottle has no special advantage, unless it is desired to make the material set either very slowly or very rapidly. If the bottle be filled with iced water, the setting will be slow in proportion to the cold, and *vice versa*, if filled with hot water, it will be rapid in proportion to the heat. This is more useful in summer, when all have experienced much inconvenience because of the rapid setting of oxyphosphate, so that in warm weather a bottle of iced water is very useful.

In mixing the material, the method must depend on the use to which it is to be put. If a permanent filling is desired, put the powder and liquid on the slab separately. With a clean, smooth spatula stir a little of the powder into the liquid till it is incorporated, producing a thin but well-mixed material. Add more and more of the powder till a thick, smooth cream is produced. This, of course, is still too thin to be used as a filling, *but no more powder must be added*. With the spatula continue to work the mass, when it will soon be observed that it begins to thicken and ball up on the slab. It now has a sticky quality, and may be used, if it is necessary to depend on adhesion to the cavity wall. If this is not the case, further working will produce a mass which may be taken between the fingers and worked as we do gutta-percha. Made into a roll, and cut into pellets with the sharp edge of the spatula, it is in a most convenient form to be packed into a cavity.

If oxyphosphate is to be used for setting a crown, it should be similarly mixed, and used at the creamy stage without further kneading. For *temporary* purposes, where it is desirable that the filling may be readily removed at a subsequent sitting—as, for example, where it is employed to cover an arsenical dressing in a shallow cavity, after the creamy stage—instead of kneading to produce thickening, continue to add the powder till the consistency is suitable for use. A mass thus made may seem the same as the other, but really it is quite different. There is an excess of the powder, and after hardening it can be more readily crumbled away

with a sharp excavator. Thus there is a vast difference between the preparation for permanent or for temporary purposes. May not some of the failures recorded against the material be more properly attributable to its faulty manipulation?

Oxyphosphate as a filling material has many uses, the most important of which is as a mass to be interposed between a metal filling and the tooth itself. It must be remembered that, save in rare cases, gold or amalgam furnishes no support to frail walls. In fact, the metallic filling depends largely on the strength of the cavity walls for its permanency. The oxyphosphate, because of its adhesion, does support frail walls, and, therefore, is peremptorily required in all such cases. Unlike gutta-percha, there need be no limitation as to the quantity used, save that the cavity above it must be of a shape which shall be retentive for the metallic filling which is to cover it. In these cases it is preferable to place a portion of the metallic filling while the oxyphosphate is still plastic, for thus the upper filling is practically cemented into place. This process will be described later.

As a permanent filling oxyphosphate may be used in cavities where the more conductive properties of metal would prove injurious. It also should be employed in conspicuous positions, as, for example, large corners or labial festoon cavities in the incisor region, in the mouths of actors and actresses, ministers, singers, lecturers, and public speakers generally.

—R. Ottolengui, in *Cosmos*.

EDITOR ITEMS:—I would like through your valuable journal to give those who never tried the Ward electro-deposit dental plate my experience with it.

I have been using the plate in my practice about a year and a half, and I consider it the peer of all other plates. If the impression is taken in plaster perfectly, and the model in plaster, the plate will be a perfect fit, giving satisfaction to the patient and dentist. There is no such a thing as misfit. The most difficult mouth can be fitted with these plates, where with any other plate it would be a failure. This is nothing more than the galvanoplastic art. By this process crown and bridge work can be more perfectly made to resemble the natural organs than any other mode of operation.

I consider for partial lower teeth the electro-deposit plate superior to all other plates. There is no slipping up and down in this plate, as is often the case with the rubber or swage plates.

S. Phillips, Corpus Christi, Texas.

STRANGULATION UNDER GAS.

In constriction of the glottis or swallowing of the tongue, the patient presents an appearance of endeavoring to breathe with violent effort from the diaphragm and chest-muscles, while the passage of air to the larynx is prevented by complete closure. He will become very dark in the face, with eyes protruding, and show signs of rapid strangulation, accompanied with extreme rigidity of the whole muscular system, which adds to the difficulty. This stoppage may be effected by a spasmodic contraction of the palatal and hypoglossi muscles,—drawing the palate closely to the base of the tongue, which is also well drawn toward the throat. This condition is not necessarily alarming, for by pulling the tongue well forward air will pass readily to the lungs and recovery rapidly follow.

The serious cases, however, are those where the contraction includes the whole pharyngeal space about and above the larynx, drawing the tissues over the glottis so tightly that to produce a passage for air seems almost impossible. The remedy is to pull the tongue well out of the mouth with a dry napkin if possible; or with a tenaculum or tongue-forceps, being sure that the back part of the mouth is free from blood and saliva, then with the fingers upon the roof of the mouth lift the head as though you would raise the whole body. This motion will produce the effect of stretching the neck, and is usually sufficient for relief. In the one case in my experience where this was not effectual, relief was obtained by placing the first and second fingers far down the throat and separating them opposite the glottis. After you have succeeded in admitting air to the lungs, say two or three breaths, the blood assumes its red color, the constriction is relieved; and if you are strong-nerved and sufficiently composed you can proceed with your operation, and have ample time to complete it before recovery, at which time your patient will have no knowledge of anything having been done or of the precarious condition he has been in; and what is to me the most astonishing, he seldom feels any ill effects from his strangulation further than, perhaps, a heaviness about the head and a soreness about the throat the next day.

These are cases which will occur less frequently as one becomes familiar with the use and effects of the gas, and yet the peculiarities are such that it would be impossible to describe them so as to enable a novice to avoid them. From experience, one grows to recognize in people idiosyncrasies which are indescribable. I have gone from my office and met people a square away and turned

to follow them directly to the house, recognizing the peculiar expression of supplicating timidity, combined with anxiety and suffering. So one can become familiar with the appearance of people in which the different exhibitions of the gas may take place. I have noticed that the men in which the effect occurs (I have never noticed it in a woman) are of medium build, with light florid complexion, exceedingly red lips and mucous surfaces, rims of the eyelids more or less congested, and small or receding chin. These persons show markedly the oxygen starvation which accompanies the inhalation of the gas, and exhibit the muscular contraction and convulsive action very readily.

—Dr. J. D. Thomas, in *Cosmos*.

OBTUNDENTS AND LOCAL ANESTHETICS.

(Report in the last Am. Den. Association.)

The use of sulphuric ether marks the beginning of the present idea of using volatile agents as obtundents. Dr. Ottolengui suggested and used this agent in 1888. It is applied by means of a spray apparatus which will throw an attenuated spray of ether upon the dry dentine, where by rapid evaporation reduction of temperature is secured, resulting in interruption of normal function; continued use would result in death of the pulp. Nitrous oxide used in the same way is used to obtund sensitive dentine. A difficulty in its use is that a very strong tube is necessary to convey it from the cylinder to the spray apparatus. It is not likely that this agent will become popular because of the necessarily unwieldy apparatus required and the possibilities of damaging results.

Dr. Rhein suggests and has used chloride of methyl for producing low temperatures and obtunding sensitive dentine. It is possible to lower the temperature to 40° below zero with this agent. It has no affinity for water, and acts only by lowering temperature. The apparatus for its use is comparatively simple and readily managed. It produces more cold than ether, the pain following its application is briefer and the impression more profound. If inhaled it produces general anesthesia. It is rather expensive, and smells badly, but it is a valuable agent.

Chloride of ethyl comes from France and is put up in three gram glass flasks or tubes, having an attenuated end, which is broken off when wanted for use, and the liquid becomes gaseous and escapes. If this is directed into the sensitive cavity of the tooth it produces insensibility by the rapid evaporation of the

fluid. The principal advantage of this agent is the fact that no costly or bulky apparatus is needed for using it.

Another class of agents are desiccating obtundents. Hot-air injectors, instruments for spraying the cavity with hot air containing some volatile agent. Of this class only such as use a spray material which has a strong affinity for water are practical or useful, as any anesthetic property a drug might have ordinarily, is lost in attenuation when used as a spray. A convenient apparatus of this character is the "Small Obtunder." It consists of a small cylinder with a heating bulb and proper points. In the cylinder is a cartridge containing absorbent material, saturated with absolute alcohol. The bulb is heated and the vaporized alcohol is injected from the nozzle into the cavity where it acts by the heat and its affinity for water as a dessicant, and producing an obtundent effect by interfering with the normal function of the nerve fibril. The Milton and Richmond devices are constructed on the same principle and are adapted to the use of various agents, essential oils, etc.; but as these agents have no special affinity for water, they do not produce dessiccation and are inefficient.

—Ohio Journal.

TELL US SOME MORE.—An American dentist, practicing in Mexico, says: "I am getting rich, and any good American dentist who will come here and stay, can do likewise. I made \$1,000 the first year, and I have done considerably better right along since that time. I can charge bigger prices. I get from \$100 to \$150 for a full set of teeth on rubber. The same thing in the States costs you \$15. Whenever I administer gas I charge \$10 for the pulling of a tooth, and when a number are pulled I charge \$10 for the first tooth and \$5 for all succeeding ones. For jerking out a tooth without gas I charge \$2, and in the United States you would only get 50 cents for this work. As to fillings, they range from \$5 upward, and gold fillings cost from \$15 up into the hundreds, according to the size of the cavity and to the size of the bank account of the man who has his teeth filled. I always get \$500 for making a set of teeth on gold, and all other business is done at proportionate rates. I know of many dentists who are making more than I, and I know of a number who charge more than I do. I often make \$1,000 a month, but dentists in the city of Mexico make more, and I know a man there who gets \$50 a tooth for any kind of filling, and who came to Mexico from South America, where he made \$40,000 in a single year."

TREATING THE ANTRUM.

Hyperemia of the antrum is more frequent than generally supposed. The antrum was analogous to cavities found in all the large bones of the face, and the lining mucous tissue was the same as that of the oral cavity, and its diseases are those to which mucous membrane is liable. A catarrhal condition of the Schneiderian membrane will cause trouble some times by closing up the natural opening into the antrum. The principal cause of disease in the antrum, however, is the opening into it by the roots of teeth. If a root becomes carious, specially abscessed, pus forms, and this causes a breaking down of the glands of the mucous membrane. All the treatment necessary is to cleanse out the cavity thoroughly with tepid water, and apply soothing remedies. He advised that they should go slowly about applying peroxide of hydrogen, and said that he at one time nearly blew a man's head off with it. He had injected into the antrum without allowing sufficient vent for escape of the gas from the effervescence, and the pressure caused such agony that the man went nearly crazy for the time. His treatment is to rinse out the antrum with tepid water; if there is no entrance caused by the root of a tooth piercing the floor, you may easily open through the buccal wall, but this will not give drainage. To get this, an opening must be made through the floor of the antrum. In case the second bicuspid or first molar is absent, enter through the vacant space; or if the tooth is not sound it had better be sacrificed. Otherwise provide for drainage by piercing the floor between these teeth. It is desirable to have the opening large—big enough to admit a lead-pencil. With an opening of this size it is safe to introduce peroxide of hydrogen. Follow this with emollient remedies, and, if pus is present, with an antiseptic fluid just strong enough to keep the cavity aseptic.

—Dr. W. C. Barrett, in *Cosmos*.

If the heel of the hand is used for a palet in mixing oxychloride or oxyphosphate, there will be no need of warming the glass or porcelain slab. Use slab merely to incorporate the fluid and powder, and then taking it up on the spatula, transfer to the hand and finish kneading, and carry to the cavity. The heat of the hand keeps it plastic for a longer time. For a small quantity I use the hand only; but a large quantity produces too much heat for comfort.

After a little practice, my word for it, no one will bother about a warm slab.

J. R. Clayton, D.D.S., Shelbyville, Ind.

A SAMPLE OF DENTAL EXAMINATION IN ENGLAND.

The *British Journal* says: "A correspondent sends us the following questions, which were asked him at the recent examination: 'In general anatomy, the difference between arterial and venous blood, what evidences I could adduce to prove the circulation; the course of the blood from the right auricle to the left ventricle; the names and actions of the valves; then the difference between inspired and expired air; and the effects of nitrous oxide gas on the blood, and generally. I was then shown a vertical section of the head and neck, and asked to name the various structures pointed out by the examiner. At general surgery I was asked to name the different kinds of nasal polypus, their chief sites, and treatment also; what was erysipelas, the character of the eruption, cause, and general symptoms. In dental anatomy, I was asked the character and formula of the teeth of the insectivora; a general formula for the carnivora; the peculiarities of the incisor tooth of the horse, and when the "mark" disappeared; also, what I understood by the terms "sexual tooth," and to give examples. In dental surgery, I was handed several plaster-casts of cleft palate, and to say whether they were "congenital" or "acquired"; also, what structures I should see above a perforation of the hard palate; then the various ulcers of the pulp and their treatment, and diagnosis between polypus of gum and that of the pulp; and, finally, what I knew of "intrinsic calcification" of the pulp.'"

EDITORIAL IGNORANCE.

It seems strange that with the vast amount of erudition—of knowledge on all subjects—possessed by editors, they have such confused ideas with regard to what constitutes the English language. Write to them in reference to revised spelling, and they at once headline a column of opposition with, "Trying to Make the Language Over." Not alone provincial papers, such as the *Troy (Kan.) Chief* and the *Troy (N. Y.) Press*, but the *Press* of the city of New York shows the same lamentable ignorance. There appears to be no conception of the fact that the written and printed characters which represent English speech are *not* the English language; that it is the words that are *spoken* which constitute the English language, not the conglomerations of characters which stand for those words.

Speaking English is a source of pride to the English and American people, and the admiration of even foreign linguists. It is, indeed, so simple in construction, so concise and expressive in its arrangement of words, that the celebrated German scholar, Grimm, said that were it not for its absurd spelling, English would bid fair to become the universal tongue. And, therefore, it is not the English language, but its spelling, which reformers are endeavoring to change by moderate degrees.

English spelling has been characterized by Prof. March, of Lafayette College, Pa., as "outrageous," because it outrages reason and common sense. This opinion has been concurred in by the most eminent theologists of England and America, such as Prof. Whitney, of Yale College, and Max Muller, of Oxford. The theologists of both countries are the leaders of the Spelling Reform movement, which, instead of being, as the *Press* says, an "almost exhausted fad," has a vitality which is now quite active. This vitality is showing itself in newspaper articles, pamphlets, Spelling Reform Departments which are found in many magazines, and various other ways, and this vitality will continue till the reform is accomplished.

Benjamin Franklin saw the pressing necessity for such a revision of English spelling a hundred years ago, and all educators, who have thoroughly examined the subject, say with him, "Sooner or later it must be done."

—Eliza B. Burnz, in *Phonographic World*.

WHAT WAS IT?

A short time ago, a man and wife came to me to have a tooth taken out for the wife, under gas. She took it nicely, as she had in times past, and to all the usual tests was fully anesthetized. Her eyes were closed and she did not move a muscle, and said she felt no hurt; yet she told us both all we said and every move we made, while her eyes were closed; for instance, her husband stood partly in front and to the right of her, so he had a full view of her face. As I took the forceps to remove the tooth, he turned his face away without moving his feet in the least, yet she told him just how he looked away at that instant.

She saw me remove the tooth and described each move made, just as if she were looking on, instead of being operated on.

She recovered consciousness in the usual time; was in usual health also.

What was her condition? Was she in the body or out?

Abiel Bowen, *Medina, N. Y.*

CONDITIONS OF LONGEVITY.

When a structure of any importance is to be reared, the first principle to be considered is the foundation. On this all depends. So in building a human body, the most marvelous of divine productions, we must begin at the lowest stage and work upward. Man is a triad, not a simple organization, and that part of this tri-personality which first appears demands first attention. A child is born—a simple animal organization, and by far the most helpless of the animal kingdom. No other animal offspring is so completely dependent on the mother; and yet, a sad fact it is, that so many mothers fail to fully comprehend the great seriousness of this relation and charge. It demands the first and constant attention of the mother. I emphasize this word, because to turn this helpless being over to the care of a supposititious nurse, while the ambitious mother is endeavoring to do the work of a man, is to insure the ruin of the child. Sad is it that so many children are left to come up, if they can, to adult years; and if they do succeed, it is to struggle with an infirmity induced by early neglect. The novelist Dickens touches this forcibly when, speaking of the different methods of bringing up children, he says: "Some tumble up." And poor Topsy says, when asked, "Who made you?" "I spec's I growed."

Now I cannot, in this paper, go into infant education physically, but can only insist on attention to this care for the infant as the foundation of a vigorous manhood and a long life. There is no natural cause for the death of one-half the human family before reaching the first critical period in life—the age of seven. It is a reflection on the Author of life to say that He wills it. Nay, it is too often brutal neglect.

The first condition, then, if longevity is to get a good start, is a full development of physical power. The law of animal life seems to be, as settled by scientists, that an animal lives, or should live, five times the period of growth. A dog grows till two to three years of age, and the average dog-life is ten or twelve years. A horse grows till five or six years old, and its life should be twenty-five or thirty years. An elephant grows till twenty, and it lives till one hundred. This animal man matures in his physical organization at twenty, and the law of his being is one hundred years. The machine which we call the animal frame, is constructed to run for a century if not abused.

Right here I shall be met with the citation from the Bible: "Does not that say, 'The days of his years are three-score and ten,'

seventy years?" I have to reply, first, that the age of the patriarchs greatly exceeded that term; and next, that David wrote of men as he found them, not as they might have been had they lived up to the laws of their being. That tireless organ under your ribs, which we call the heart, was constructed to throb on for a century at least, if not abused and driven into an unnatural pace. There's an old clock on the stairs in my hall. Hark! it is now ringing out twelve meridian. It is constructed to run on with a storage of muscular force which I impart to it weekly; but if I should hasten its movement by taking off or shortening the pendulum, it will not live out—like the wicked—half its days. You have just so much life-power, as an endowment; you can husband and use this gift so as to reach and enjoy a green old age, or you can waste and exhaust it by excessive drafts, and find yourself a bankrupt in middle life, and go into the hands of the great "receiver," Death.

Full of life and of exuberant spirits, the youth hardly feels the effect of early excesses, and is not aware that he is drawing on his reserve powers. Nature honors the drafts, but at last comes the startling notice: "No funds."

Thorough acquaintance with physiological laws, and loyalty to those laws, is a *prime condition of longevity*. Transgression of law is sin, whatever the law may be.

"There is one lawgiver," is a truth of Scripture; and a violation of a physical law which injures the animal body, and so shortens life, must be, in the sight of God, a sin. Now these laws are just as plainly written as the Decalogue. "Doth not nature teach?" A breach of a physical law is announced by pain just as surely as a breach of moral law is followed by conscience pangs. We are startled by a suicide, but we seem to be blind to the fact that there may be suicides without rope, poison or pistol. We see a man slowly falling into habits of intoxication, and we say: "He is killing himself;" and this is true. But is not the gourmand, the glutton, in the same path? The difference is, the glutton injures himself mainly alone, while the drunkard brings suffering on the innocent.

Many years ago I startled some friends by the assertion in a lecture that "more people kill themselves by over-eating than by intoxicants." But I was afterwards supported in my statement by reading the same sentiment expressed by the celebrated Dr. Abernethy, of London; and not three months ago I saw the same remark quoted in an English magazine from an address by an eminent London physician. This is a fact that should "give us pause" and lead to serious investigation.

But let us go back a step to the beginning of infant life. A child is born. Now up to twenty years material must be furnished in quality and quantity to meet the demand of growth and the natural waste of the growing body; but when growth ceases, the demand for material calls a halt. The structure is completed, and the occupant has moved in; the house "built by wisdom" is now to be "established by understanding," while "the chambers by knowledge are to be filled with all durable and pleasant riches." Nothing now remains but to conserve, repair damages and guard against waste.

Now the natural waste which follows the laws of organization, and which will at last lead to total disintegration, is proportioned to the rapidity of motion or action of the several parts of this wonderful machine. The more rapid the rush of the locomotive, the greater the wear and waste of the several parts of the machine. So a man engaged in severe manual labor throws off more of the material of his body, and, to keep the normal condition, must take on a larger amount of nutritive material, and of a quality agreeing with the parts on which the greatest drafts have been made. On the other hand, however, the person who has been engaged in brain-work will require less in quantity and different in quality to meet the waste of his machine. And this is a view of our subject which should fix the attention and claim the investigation of all persons of sedentary habits—the *quality* and *quantity* of supply to meet the demand. The giant locomotive hungers for coal, because its power depends on steam, and steam comes from heat, and heat from combustion of fuel; but the mysterious, silent dynamo, the brain, calls for a little more lightning.

Now I think we may, after the elucidation of the principles, come to the more practical, and ask, How may one apply these principles, and so live to a good old age, and enjoy it when gained? We have now, under the head of adequate nourishment, two branches of our subject to consider—*quality* and *quantity*. I will take up the last first, for a reason which will appear when I come to personal experience; and with us Methodists the last is a potent factor in this discussion.

All food taken beyond a sufficiency to supply the wants of the system is a violation of nature's laws. This will appear if we consider, first, its effects upon the body. Nature kindly throws off, while she can, all obstructions to the easy working of the machine; but every effort of this kind, as it is an act not provided for by the builder, makes a draft on our reserve power. The effort to relieve an overloaded stomach takes just so much from our physical force.

It is usually for a time successful, but as nature's force decays she says at last: "Its no use to try farther," and the victim drops dead in his tracks. "Apoplexy," says the doctor. "Suicide," says common sense. Here's a man dies of strong drink, and the doctor says: "Died of alcoholism." But who ever heard of a coroner's verdict thus: "Died of gluttony?"—*Rev. Mark Trafton, M. A.*

[*Concluded in March.*]

OPENINGS IN THE WALLS OF THE TEETH.

Dr. W. C. Barrett says: It is a generally accepted fact that the pulp passes down and out of the apical foramen. This is not true of the partially developed teeth of the young. As the tooth becomes fully developed it is the fact that the apical foramen closes in more and more. But there is no such thing as an artery which can be traced beyond the pericemental membrane through that till it enters the foraminal opening, thus forming a direct communication between the arterial system and the pulp. The blood-supply of the tooth comes from the periosteum. This membrane surrounding the tooth is an exceedingly vascular organ, and little twigs from it may pass right through the side of the root of the tooth almost anywhere, and in this way as well as by the apical foramen is the tooth nourished. The arterial supply always comes from the pericementum; in fully-developed teeth this almost always passes through the foramen, which, however, is seldom a single open aperture, but is a collection of canals similar to the delta region at the mouth of a river. Blood stasis is not what produces the death of the pulp, but the peculiar destructive and escharotic effect of the arsenic disorganizes and causes its death. The pulp is never destroyed by inflammation closing up the apical foramen and causing strangulation. If it was in this way that tissue was destroyed, what could be said of arsenical ulcers in the cheeks?

I am asked if the blood passed from the pericementum to the pulp through the tubuli of the tooth.

In young persons it might form a Haversian canal, and pass through the substance of the tooth. In teeth not fully calcified these can be found by forcing gutta-percha through the tooth. I have seen teeth in which gutta-percha had been forced through ten or twelve openings through the sides of the root. As the teeth are fully calcified, these canals fill up, but the foramen will rarely be found to be a single round opening with a single arterial branch, but almost always several openings.

—*Cosmos.*

NITROUS OXIDE WITH ETHER.

In the combination of nitrous oxide and ether we have the most perfect anæsthetic agent at present available. The advantages of both are fully obtained without the disadvantage of either. There are combined all the best features of nitrous oxide, its pleasantness, and its rapid action with the prolonged anesthesia of the ether.

The patient passes quickly under the influence of the gas, and once unconscious, the ether is gradually turned on, and insensibility can be maintained indefinitely by its actions.

There is no struggling, no coughing, or resisting the ether, and the salivation is reduced to a minimum, or is entirely absent.

There is further, the great advantage that the anæsthetic effect can be carefully graduated. If only a little extra time is required a little ether, with the last bagfull of gas, will sensibly prolong the nitrous oxide anesthesia without leaving any ill effects in the way of sickness. The stimulating effect is most marked.

There is no need to dilate on the phenomena of the nitrous oxide and ether anesthesia; they are similar to those produced by either alone. Of course it requires practice to be successful with it.

I began my career as an administrator of anesthetics, with a strong prejudice, in favor of chloroform. As sole administrator of anesthetics to the Manchester Royal Infirmary, during the last four and a half years, my total number of administrations of anesthetics amounted to about 5,000, the great majority of which were chloroform cases. It was after an extensive experience with chloroform that I began to use ether, and now, though I would never hesitate to use chloroform, I infinitely prefer gas and ether. This preference for ether (given with gas), is also shared by many surgeons for whom I previously used to give chloroform. The transition from the use of chloroform to that of gas and ether was easy, and the advantages self-evident, but I admit it was with difficulty that I broke myself into the habit of giving pure ether.

—*Alexander Wilson, Eng., in Dental Science.*

As professional men, we should be upright and courteous in our intercourse with the public and of our professional brethren. We should always guard against disparaging the family dentist by hints, inquiries or any other means calculated to weaken the patient's confidence in a neighboring practitioner, when called on to give temporary relief and advice. *Dr. C. A. Southwell.*

TREATMENT OF ALVEOLAR ABSCESSSES SIMPLIFIED.

I have been desirous of reaching the goal of simplicity in the rapensis ever since I began the practice of dentistry, being satisfied that simplicity leads to thoroughness, and thoroughness to the best results. I have not had one failure out of forty-two cases (three of the forty-two were in one month). Patients appreciate simplification and rapidity in all our manipulative procedures. We are told antiseptics check the development of disease germs, but do not kill them. *Germicides* are agents that kill disease germs and are therefore possessed of antiseptic qualities. *Disinfectants* are agents that protect parts from the action of disease germs. Every intelligent dentist uses all of the above in his daily practice, and some have many of each class. Thorough mechanical purification, aided by the use of pure boiling water, used with the same care as the escharotics are used for the protection of the patient, embraces the three great classes of agents mentioned above, viz: antiseptics, germicides and disinfectants. I have accomplished perfect results so far by mechanical purification in conjunction with pure boiling water, where by using any form of chemical disinfection, or watery germicidal solutions, I have had repeated failures. In the treatment of alveolar abscesses, experience has taught me that by injecting pure boiling water through the suppurative tract, in the treatment of any of its varieties, aided by the mechanical effect produced by the force of the pure boiling water ejected from the syringe, has proven infinitely more important than any of the chemical solutions I had formerly used. I am inclined toward the belief that we must recognize the virtue of pure boiling water, as with it scrupulous cleanliness is attained, and the high temperature renders inert the micrococcus septicus, so-called, and it opens up the main avenue by which we reach and retain perfect antiseptic conditions.

W. T. McLean, Cincinnati, Ohio.

IN NEARLY OR QUITE EXPOSED NERVES.—To prevent pain from the application of oxyphosphate near the pulp, touch with a thin solution of gutta-percha in chloroform; over this lay a piece of No. 8 tin-foil, or a flattened pellet of gold. Then put in the oxyphosphate.

Exposed pulps may be capped in a similar way by adding a small amount of oil of cloves to the gutta-percha solution. If the pulp be wounded, stop the hemorrhage with chloroform, and take away the clot so made before capping.

—I. Douglas.

AN ERRONEOUS IDEA.

A few days ago, a man came to my office with a face we have all frequently seen—a knot on his lower jaw the size of an egg, or larger, the result of an ulcerated six-year lower molar. On examination, I found it in a terrible condition; puss oozing from the socket round the neck of the tooth, in fact, the whole lower mouth was covered with a mass of corruption. I, of course, told him that there was one thing that must be done and that was remove that pus either by removing the tooth or an incision in the gum. "Oh, no," he said, "you can't get me to believe anything like that. I've worked in a hospital for two years. You can't tell me anything like that. Before I'd have that tooth taken out or lanced, I'd die with it."

I saw there was no use in arguing or trying to reason with him, because he knew it all, and I knew nothing; so I told him to go home and treat it according to his own ideas and not come to me again. And so I guess he did. Now I have had a number of such cases, but not quite so bad, and many of them have been to other dentists and physicians who would not extract the tooth for them, and told them that it would kill them if they had it done. Under these circumstances, I always extract the tooth and syringe the socket with warm water; then a weak solution of carbolic acid, and have never had any trouble, and don't think I ever will. Now, if there is any one who knows one good reason why a tooth like that should not be extracted, I would like to have him tell it in the ITEMS OF INTEREST. I think there are many good reasons why it should be done.

If there is no reason for it, I would like dentists and physicians to stop putting such foolish ideas into the heads of people that can't reason enough for themselves to know that it is false.

Dr. E. Ernest Murray.

REFLEX ACTION.

A lady about thirty years of age had been bedridden for three years from what was pronounced to be a spinal affection; for the whole of that time she had been under medical treatment, blistered, leeches, and medicated, *ad nauseum*, with no abatement whatever of her distressing symptoms. The case was first mentioned to me by a friend who knew I had given considerable attention to diseases arising from reflex neurosis, and which in the majority of cases I had traced to diseased teeth.

On my first visit to the lady, I was informed that her usual health was fairly good. On examination of her mouth I found two lower molars, one on either side, in a state of necrosis, they had been filled with amalgam. I suggested the advisability of removing them, and that without delay, to which she demurred, on the ground that they gave no pain; that, however, proved conclusively that the suffering in the spine arose from those dead teeth, and was of a reflex character, I explained to her that was the origin of such affection. After I had strongly impressed this on my patient, she submitted to have them extracted. In the course of a few weeks I had the satisfaction of hearing that she was much better, and making rapid advances towards recovery. I found it necessary to explain that the cure *might* be prolonged, though the cause had been removed, owing to the protracted suffering, at first reflex, becoming absolute. To expedite the recovery, I advised the use of small doses containing iodide potassium, with aconite, which seemed to aid in bringing about the happy result mentioned.

William R. Tuck, L.D.S., England.

EDUCATING THE PUBLIC.

The appreciation of the laity has been so meager that the profession has mainly fallen back on verbal office instruction. On these occasions it would be folly to go into long dissertations. To be effectual, let the members of the profession contribute such short essays on specific subjects as would be suitable for popular reading, to be printed for general distribution. But these productions should be first submitted to a chosen board of examiners for approval, and published under the auspices of "The National Dental Tract Society."

Each paper should carry with it the author's name, but not his address. Suppose there should be twenty essays on twenty different subjects, it would afford a grand opportunity to enlighten the people, and it would be inexpensive as compared with the amount of good wrought. There would be no lack of resource in impressing the reader with a fullness of appreciation of the chosen text.

Each author would exchange his own production for such others as would meet his personal approval, paying the cost of publication. The market, however, would be open to all.

But where is the society which proposes to carry to successful issue this scheme? Will half a dozen gentlemen volunteer to start it? The expense would not be burdensome.

W. S. Elliott. M.D., D.D.S., M.D.S., Sag Harbor, N. Y.

BLACK-MAILING.

Jeremiah T. Bethel, alias C. F. Manley, was neatly caught by the Brookline police on Tuesday last. He had tried to extort money from Dr. Malon E. Brande, of Brande & Soule, dentists, 150 Tremont street, Boston. The story as told a reporter by Dr. Brande, is as follows, "On August 7, I received a note signed by C. F. Manley, which demanded of me a stated amount of money for having, as the writer alleged, acted very improperly with a lady patient with whom he was acquainted. If the money was forthcoming, the matter would be hushed up, if not, he threatened to make it public. He told me in the letter, among other things, that he knew I was a leader in society and a married man, and the publicity of anything of a scandalous nature about me would be better stopped while it could. I treated the entire thing as a hoax, but finally showed the letter to the officer in charge of station 4, not knowing what I should do about it. I was requested to reply, and say I would pay the money demanded at some future date. A response came from Brookline, and was signed as was the first communication, 'C. F. Manley.' He wanted the money without delay. I now placed the matter in the hands of Chief of Police Bowman, and acting under his instructions wrote Manley that I would send the money by registered letter. I did send a registered letter containing a check on a sand bank, and it was through that letter the miscreant was captured." Officers were placed in the post-office to watch, and on Tuesday the man boldly marched in with a registered letter card addressed to "C. F. Manley," and having signed for the letter in that name, he was taken into custody by Sergeant Bartlett. Bethel admitted his guilt, and before the court, Wednesday morning, he plead guilty. Judge Drew bound him over to the grand jury in the sum of \$1,000.

THE first steel pens had to be made by hand. The manufacturer, Perry, paid for the first steel pens \$1.25 a-piece. And we often read that steel pens used to cost \$5. But still these pens were not as good in quality as those which are made to-day. After factories had been established, the price of a steel pen was still \$1, and then fifty cents, and then twenty-five cents, which price was kept up for some time. To-day one can get a gross for that price

—*Metal and Iron Industry.*

HOW IT WAS DONE.

I asked a cobbler once how long it took to become a good shoemaker. He answered promptly, "Six years, and then you must travel." That cobbler had an artist-soul. I told a friend the story, and he asked his cobbler the same question, how long does it take to become a good shoemaker? "All your life, sir." That was still better—a Michael Angelo of shoes! Mr. Maydole, the hammer-maker of Central New York, was an artist. "Yes," said he to Mr. Paton. "I have made hammers here for twenty-eight years." "Well, then, you ought to be able to make a pretty good hammer by this time." "No, sir," was the answer; "I never made a pretty good hammer. I make the best hammer made in the United States." Daniel Morell, once president of the Cambria rail works in Pittsburg, which employed seven thousand men, was an artist, and trained artists. "What is the secret of such a development of business as this?" asked the visitor. "We have no secret," was the answer; "we always try to beat our last batch of rails. That's all the secret we have, and we don't care who knows it."

Rev. Wm. C. Gannett.

News comes to us, suddenly apprising us that in such an hour as we think not the summons may come. To Dr. Kingsbury, for many years Emeritus Professor of the Philadelphia Dental College, it has come; he has gone up higher. This is the fifth one of the number of patriarchs that have passed on, and others with sails fluttering in the fitful gales that so much often burden the advanced years. Let us desire that all such may find a peaceful harbor. Prof. Kingsbury was among our earliest Philadelphia acquaintances, and the truly earnest McQuillen also. Prof. Kingsbury was truly a gentleman, and that is not a little to say of any one. And another has gone whom we chatted with but a few weeks since while in our daily walk in Fifth avenue. Dr. Grout, not so familiarly known among those outside of New York. We first made his acquaintance at Dr. Atkinson's twenty-five years ago; he was in the employ of the doctor in the construction of his so-called mechanical work. I first saw from the work of his hands some of the finest pieces of gold plate dentures that could be desired. He was something of an inventor in crown and bridge work. He so formed his bridge that he set all his crowns into it by cementing after the bridge was in place, and in case of repair he had only to remove the broken crown and replace by the same process. This he secured patents for.

—Review.

PAIN—ITS DIAGNOSTIC VALUE.

Pains coming on in paroxysms are neuroses, and usually involve nerve troubles. Rhythmical pains always belong to nonstriated tissues, and are usually associated with some one of the hollow organs.

Coldness, chilliness, heat, burning, itching, creeping, crawling, and similar pains are peculiar to the skin and mucous membranes.

Sticking, darting, stabbing pains are always found connected with serous membranes or connective tissue.

Throbbing, tearing, aching and pressing pains indicate that solid organs are involved.

Hyperesthesia and anesthesia indicate that the sensory divisions of the cerebro-spinal nerves are involved.

—Dr. Owens, Cincinnati, O., in *Pulte Quarterly*.

Another case of swallowing an artificial denture is put upon record by Dr. Rozenzweig, of Malmesburg, Cape of Good Hope. It happened during an after-dinner nap, from which the patient suddenly woke with an intense suffocating feeling, with acute pain in the throat. His artificial teeth could not be found, though he was positive they had been in their accustomed place when he had fallen asleep. Solids and liquids could be swallowed freely and without pain. A sponge probang passed easily into the stomach. The patient was put to bed, enjoined strict rest, and the ordinary diet in such cases prescribed. For the next three or four days there were severe cramp-like pains, specially over the hypogastrium; no marked tenderness, constipation alternating with diarrhea, and the stools contained little fecal matter and much mucus. There was no tenesmus or blood passed. A long rectal bougie failed to detect anything. About the fifth day matters improved, the bowels moved regularly, and the motions were normal in every respect, and continued so for the next six weeks. About the third week the treatment proved too monotonous, the patient got up and ate freely. Shortly after this, after a long drive, he was seized with severe abdominal pains, and the teeth and plate passed, seven weeks after having been swallowed. The teeth stuck at the anus; and were forcibly torn out, occasioning free hemorrhage. Two large abscesses subsequently formed on either side of the anus. Both have healed. The teeth were attached to a gold plate, the whole measuring, in its longest diameter, two and one-quarter inches, in its shortest one and one-quarter inches, and its greatest breadth was three-fourths of an inch.

—*British Journal*.

EXPANSION OF RUBBER.

Dr. Driscoll seems to think that because a piece of naked rubber expands while being vulcanized, that I am wrong in thinking "that rubber plates do not expand during the process of vulcanization," but, "that the breakage of the porcelain teeth and gums is due to some other cause." The Doctor gets over on my side, when he says, further on, in his article, that the way to avoid this breakage, is to "cool very slowly" after vulcanizing.

Of course, if the breakage was due to the expansion of the rubber, it could have occurred long before the cooling process began.

Dr. Murphy thinks I am wrong, because he had some to expand recently while being vulcanized in a cigar box.

Now, when a plate is prepared for vulcanizing, it is incased in plaster-of-Paris—which is as non-elastic as the everlasting hills—and *that*, inclosed in a flask of heavy metallic plating, so that there is absolutely no room for expansion, without increasing the size of the flask; and in that event the flask would soon get to be like Murphy's cigar box—too big for the vulcanizer.

J. H. Boyett, D.D.S. Waco, Texas.

WAX AND WAX SHEETS.—The following method of making sheet-wax, discount glass plates, soap-suds, mercurialized tin-plates, etc. Use a straight-sided, round, porous battery-cell, filled with cold water for the dipping mold. It is necessary to mark the wax vertically on opposite sides of the cell quickly after dipping to prevent the sheet cracking from shrinkage. The sheets must be flattened out before they become brittle by cooling.

In this connection a hint regarding wax used for impressions may be in order. It may be practically purified, and positively sterilized by melting it in water which is boiling, using a deep and quite narrow vessel wherein it may be set aside and allowed to cool without being disturbed.

When actually cold the cake can be taken out; all the dirt having settled to the under side may be scraped off; bits of plaster go to the bottom of the water.

Wax so treated contains *no water*, works much better on the wax knife, and is practically clean.

If the wax is wanted in cakes, it can be re-melted and cast in suitable tin pans which have been brushed over with a strong solution of white castile soap.

C. D. Cheney.

Hoboken, N. J., Nov. 10th, 1891.

Items.

The question department of the ITEMS is quite interesting.

W. E. Driscoll, Manatee, Fla.

The best mode I have ever found for mending a plaster cast is to mix scraped celluloid chips with chloroform. *E. N. North.*

I am very much interested in the question department. Wishing you, and the department you are making so helpful, success, I am

J. W. Gale, Chippewa Falls, Wis.

E. N. N.—You will find answer to your question in September ITEMS—Question 20.

Thanks for your kind praise of the ITEMS. We are pleased that you find it so interesting. *E. N. F.*

STEEL pens were not so called from the material used in manufacture, but from the name of the first manufacturer, a Mr. Steele, who began business in England in 1803.

—The London Phonographer.

By treating toothache by means of a mixture of equal parts of crystallized carbolic acid and flexible collodion carried to the bottom of the tooth cavity, the pain is said to disappear instantaneously.

—Clinic.

The greatest and best things are accomplished, not by individuals alone. While some one mind is responsible for the first idea or incentive, most great and important enterprises are the result of combinations of kindred minds.—*J. Taft.*

Dr. A. P. Southwick relates a case of a patient of his who had come to him with an abscess in the antrum, his whole face swelled up, and his eyes almost crowded out of the socket. He commenced the treatment of the case, but the man did not return after the first day, but submitted to home treatment of poultices. The brain subsequently became inflamed, causing death within two weeks.

EDITOR ITEMS:—My subscription to ITEMS dates with its origin, I want nothing better. Much has been said in regard to porous rubber plates, I have not had such a thing in years; I use in the thickest part of a plate a little weighted rubber covered all over with pink or two or three varieties, and I do away with all porousness.

T. H. Downing, Macomb, Ill.

No dentist is worthy of reputable patronage who is not master of his profession, a gentleman in his manners, cleanly about his office, free from demoralizing habits, honest in his dealings with his patrons, and of good moral character; while he may more reasonably expect to be more and more successful the more nearly he meets the requirements of modern, refined and intellectual society.

—*Dominion Journal.*

After my experience in dentistry, I have become firmly convinced that our profession, as we can practice it abroad or at home, is one of the most favorable of all the professions for health and long life, provided we practice it with the intention of sustaining the high reputation we have hitherto enjoyed, and of representing with hard, systematic, and skilful work, united with pride in our moral and physical condition, the best dentists of our native country.

—*C. H. Terry, in Italy.*

EDITOR ITEMS:—Though young in practice and years, I have learned that to be a successful dentist, and popular with the public, one needs a good education and a congenial nature, a well-equipped office and outfit, and a Christian spirit to fortify himself against despondency, impatience, and trying patients; yes, and a dear, good wife, who will encourage him, stimulate his ambition, and love him with all his faults.

“*Crank.*”

Correct living and longevity. I have no theory—no practical solution to present. One thing I do know, whatever elevates the race, purifies their morals—keeps them temperate in all things—will rapidly lessen their death-rate; for if anything is proven as clearly as the finest mathematical demonstration, it is the fact that whatever purifies, elevates and ennobles, conduces the greatest longevity consistent with the environments.

—*Dr. E. H. Schall, in Virginia Med. Monthly.*

There is but one material which is best adapted for the filling of a given cavity at a specified time. Let us use that specially indicated material on every occasion, even if we should lose by the transaction. Let us refuse to use amalgam where gold should be employed, and equally let us fill with amalgam if best, even though the patient would pay more for gold. Few would deny the wickedness of placing a number of amalgam fillings in the incisor region, yet if gold can be used to best advantage it is equally wrong to improperly fill bicuspid and molars with some other material.

—*R. Ottolengui.*

A MAGNET carried by Newton in a finger ring is said to have been capable of raising 746 grains, or about 250 times its own weight of three grains, and to have been much admired in consequence. A magnet formerly belonging to Sir John Leslie, and now in the physical collection at Edinburgh, has still greater power, however, weighing three and one-half grains and being able to support 1,560 grains.

—Archives.

REMOVAL OF MOTHER-MARKS.—The *Allgemeine Medicinal Central Zeitung* gives the following as very efficacious: Mix one part of tartrate of antimony with four parts of emplastrum saponatum and work into a paste. Apply the mixture over the mark to be removed to the depth of one line (one-twelfth inch), and cover with a strip of gummed paper or court-plaster. On the fourth or fifth day suppuration sets in, and in a few days later, scarcely a sign of the mark can be seen.

—American Med. Jour.

EDITOR ITEMS:—A gentleman called to have a troublesome right upper molar removed. On examination, I found he had four full-fledged molars on that side, with one bicuspid *in situ*, and space where the other had been extracted some years ago. On the left side I found three perfect molars in place, and the roots of the fourth, or wisdom tooth, in position, having been broken off in an attempt to extract. The same condition of bicuspids maintained as on the right. Eight full-sized permanent upper molars.

C. H. Sterneman, Muscatine, Iowa.

CAUSED BY A TOOTH.—On October 22d, a patient came to me suffering with a pain in her neck and ear. This pain had lasted about five weeks; she had consulted a physician, without relief. I examined her teeth and found in the left upper second molar a cement filling which she said had been placed there about three years ago and had given her no pain whatever. I removed it (all the other teeth being sound), and found the nerves to be badly congested. I removed them and she was relieved instantly of the pain in the neck and ear. She visited me again and stated that she had not had a recurrence of the pain. Can someone tell me the cause of this peculiar state of affairs?

Dr. Russel W. Allen, Monticello, N. Y.

I consider ITEMS OF INTEREST king of dental journals for the progressive dentist.

Ira B. Archer.

KEELEY CURE.—Seeing several requests in *The World* for the Keeley cure for drunkenness, I will give you what I believe to come very close to it :

R.—Sodio-auric chloride	grains	xij.
Ammonium chloride	"	vj.
Strychnine nitrate.....	grain	j.
Atropine.....	"	¼.
Extract cinchona comp. fluid.....	ounces	ijj.
" coca fluid.....	ounce	j.
Glycerine.....	"	j.
Water.....	"	j.

M.—Sig. Take a teaspoonful every two hours when awake. And the following hypodermic injection every four hours ; 1-10 grain of the chloride of gold and sodium, and 1-40 grain of the nitrate of strychnine.

This will produce the same symptoms and same results as the Keeley cure.

—H. E. Whitsey, M.D., in *Medical World*.

Manufacturers of rubber dam cover the surface with powdered soap-stone, and if dentists will do the same after washing and drying, they will find it (the dam) will slip over the teeth "as if it had been greased," and not feel so bad in contact with the face. That has been my practice for several years. I keep one of these individual peppers filled ready for use. Powdered soap-stone is used in stores to dust in kid gloves ; also in shoes to assist in being put on easily. So it can be readily procured.

It is also just the thing to dust the packing of vulcanizers to prevent sticking.

To prevent modeling compound from sticking to the natural teeth in taking impressions, take a large pellet of cotton, dip it in glycerine and thoroughly oil the teeth ; then take impression before the patient closes the mouth. Nothing disagreeable to the patient like other oils.

Abiel Bowen, *Medina, N. Y.*

I have been using a gasoline jar blow-pipe (and I bless the inventor of that scheme), but the blowing by mouth has always been very difficult for me, specially where I have a large case of bridge-work to heat up.

While thinking how I could get a continuous flame that would do the work satisfactorily, and save my lungs, it suddenly occurred to me, that, by attaching one of the tubes leading into my gasoline jar to a cylinder of nitrous oxide gas, I could get all the "blow" I wanted. This I immediately tried, and it works like a charm ; you can get as strong a flame as you like.

Dr. J. P. Collins, Boone, Iowa.

PERIODS OF GESTATION.—The periods of gestation are the same in the horse and ass, eleven months each; camel, twelve months; elephant, two years; lion, five months; buffalo, twelve months; cow, nine months; sheep, five months; reindeer, eight months; monkey, seven months; bear, six months; sow, four months; dog, nine weeks; cat, eight weeks: rabbit, four weeks; guinea pig, four weeks; wolf, ninety to ninety-five days. Geese sit thirty days; swans, forty-two days; hens, twenty-one days; ducks, twenty-eight days; pea hens and turkeys, twenty-eight days; canaries, fourteen days; pigeons, fourteen days; parrots, forty days.

—*Western Med. Reporter.*

Examining boards, says Dr. Barrett, do not know what methods teachers have adopted in giving instruction, and it would not be a difficult matter to puzzle and annoy a very bright student, and more so a timid or bashful man, although well-qualified. State examiners who have never been teachers know little of the difficulties of imparting instruction, and it may be that members of college faculties could embarrass without much difficulty the State examiners themselves. How would it do to have a national board of examiners to examine State boards and college faculties? The college faculties and State boards must be harmonized. Members of State boards should examine the workings of the various colleges, and approve or discredit their work, and then accept or reject their diplomas.

An esteemed contemporary speaks of capping "an exposed nerve." We suppose an exposed *pulp* is the better term. There are ramifications of blood vessels and nerves running through the live pulp, but they are so small they cannot be seen.

The same authority speaks of "alveolar abscess or putrescent pulp," and goes on to treat them as synonymous terms. Alveolar abscess is a living, growing body—not a putrescent pulp. It is no part of the pulp of a tooth, but the result of its death—a living abnormality constituting the terminus of the nerve and blood vessels which did lead into and constitute a part of the pulp of the root canal, but which, by the death of the pulp, spreads out on and fastens itself to the apex of the root, forming a strong pendant sac, filled with semi-putride, which is continually forming in and discharging from the sac.

There is really no such a thing as an alveolar abscess, as the abscess is not connected with the alveolus, only as it presses against it, and thus absorbing its substance to make itself room.

Monthly Gossip.

BY WM. E. BLAKENEY, D.D.S.

ANESTHETICS were discovered in 1844.

THE NUMBER OF ARTIFICIAL TEETH made in the United States during the past year is said to be 40,000,000.

IT IS SAID by competent authority, that ninety per cent of the so-called cases of heart disease are due to indigestion.

THIMBLES HAVE BEEN FOUND in the Egyptian catacombs in mummy cases, antedating the Christian era, eighteen centuries.

DR. BARRETT, the newly installed editor of the *Dental Practitioner*, indulges in a little pardonable pleasantry in his salutatory.

ACCORDING TO THE MEDICAL BULLETIN, neuralgia of the fifth nerve, not dependent on decayed teeth or disordered stomach, may be relieved by five-drop doses of fluid extract gelsemium, administered three times a day.

ARISTOL IS A COMBINATION of iodine and thymol, manufactured by Friedrich Bayer & Company, Elberfeld, Germany. "It is," says R. M. Chase, D.D.S., M.D., "a valuable, inodorous and non-toxic antiseptic, much superior to iodoform, iodole or sozo-iodole."

SOME OF THE ABLEST PHYSICIANS in Europe have devoted much time and thought to the prevailing epidemic. The question, "How we shall prevent ourselves from catching the grip?" is briefly answered in the following advice: "Avoid fatigue and fogs, dress warmly, and keep dry."

FOR COLD IN THE HEAD, while in the acute congestive stage, there is no better remedy than gelsemium. One good, large dose, say ten minims of the fluid extract, taken before going to bed, will effectually dispose of this troublesome and uncomfortable affection. One dose is usually sufficient.

A STONE HATCHET was found, recently, in one of the large phosphate beds in Florida. It was only a few years ago that the fossil jaws and bones of the feet of a woman were taken from a coral bank on the Florida coast. Professor Agassiz pronounced them to be at least ten thousand years old.

ONCE FAIRLY EXPOSED by a break in its floor, the antrum never again voids itself through the nose, the reason being, says Dr. Garretson, in his system of nasal surgery, "that the ciliated expression of the antral mucous membrane has lost its office, as a result of the disease that caused the opening."

IT IS REPORTED THAT DR. PFEIFFER, son-in-law of the distinguished Professor Koch, has discovered the influenza bacillus, and has transplanted it in six cases with complete success. He has also discovered the original cause of infection, and says that the bacillus of influenza is the smallest bacillus yet discovered.

PROFESSOR L. C. INGERSOLL, an excellent authority, in speaking of sulph. zinc, says: "It is astringent, tonic, anti-microbic and alterative, and has a very beneficial effect after thoroughly cleansing and disinfecting. A pus destroyer first, then to restore the functions of the tissues comes next, which is just as important in curing the disease as to destroy pus."

DR. KIRK has a good word for aristol. "Not the least interesting and altogether satisfactory application of aristol in dental practice," he says, "is the use of its chloroform solution, instead of sandarac varnish for saturating cotton used for wedges or temporary stoppings in retaining medicaments during treatment." The doctor believes in the special advantages gained by the use of this antiseptic.

THE NEW REMEDY for tuberculosis, which is now in the hands of the doctors at St. Mark's Hospital, this city, is expected to be the most valuable discovery for the alleviation and cure of this disease which has yet been made. It is mainly Koch's lymph, from which Professor Klehs has succeeded in eliminating the ingredients which formerly interfered with the success of the remedy. This will be good news to consumptives.

IN TAKING IMPRESSIONS for partial plates, when the teeth are long and irregular, Dr. G. F. Andrews believes it a good plan to "fill the spaces between the teeth with plaster, allowing it to harden, then to varnish and take the impression over all. After removing the impression, take out the cores and place them in position in impression." The use of wax, instead of plaster, for filling the spaces is much easier, and, to my mind, the better way.

DR. CHASE believes that phenacetin is a valuable analgesic, and claims to have had good results in administering it in five-grain doses, once in an hour, until fifteen to twenty grains have been given. "This," the doctor says, "will relieve neuralgia and headache when other remedies fail." Phenacetin is absolutely tasteless, and more agreeable to take than any other antipyretic, and without the toxic effects which are claimed of some of the preparations of this class.

A VERY INTERESTING DISCUSSION followed the reading of the paper entitled "A Study in the Regulation of Teeth," by Dr. Otto-

lengui, of this city, before the Odontological Society of Pennsylvania. Dr. Truman "could not understand how we can go on moving teeth continuously without general disturbance to the individual;" and, he contends, that "slight irritation is absolutely necessary for the reformation of bone, which must take place after the moving of the teeth, to replace that carried away by absorption."

DR. S. B. PALMER says, that when cavities are dried with warm air, and lined with varnish, (he uses copal, or Canada balsam, cut with chloroform) sensitiveness does not return to the surface on being moistened, as it does when no insulator is used. "Amalgam," he says, "used in connection with varnish, remains bright on the inner surfaces, which it never does if filled on bare dentine;" which, in his opinion, "proves that there is no chemical action in a varnish-lined cavity—consequently, no micro-organisms and no decay." I should like to know what the readers of the ITEMS think of the doctor's theory?

A WRITER IN THE *New York Herald* claims to have been cured of malaria and the grip by the use of calisaya and iron. He says that he was among the first sufferers from the grip, when the malady first made its appearance in this city, and that he had a recurrence of the dread disease one year ago. On both occasions he was entirely cured by the use of this tonic. "Since then," says the writer, "I have cured every attack of the same nature by the use of calisaya and iron, and nothing else; and I have recommended it to friends who have used it with equal success."

A WHOLESOME INTEREST seems to be awakened just now in the new antiseptic drug pyoktanin, which was discovered by Professor J. Stilling of Stratsburg, Germany. Dr. Rosewell Park, of Buffalo, N. Y., says (in *Annals of Surgery*) that "pyoktanin cannot be relied on in surgical practice except in such strength as to make it dangerous. In gonorrhea it is disappointing. On granulating surfaces it exerts a desirable effect, but is no more valuable than other substances as easy of access, while the stain is often objectionable. In ophthalmological practice it has not come up to the requirements of the day. It has few qualities not possessed by numerous other drugs of its class, and on the whole it is disappointing."

COLONEL GLIDDEN was, and is, one of the most thoroughly posted men on the subject of whiskies that there is in this country. He has been a highly paid government expert in various cases where the quality of the whiskies was involved, and he unqualifiedly declares that "there are not more than six brands of whisky in the

United States which are pure and sold as they come from the still. Nearly all blended whiskies are fortified with a touch of alcohol, and by far the greater portion of whisky sold in the United States is a *mixture of drugs* by which there is temporarily produced the effect of liquor, but which is *destructive of the nervous system.*" This is the greatest temperance lecture that was ever delivered by mortal man. No wonder so many die, nowadays, of apoplexy, paresis and heart disease.

DR. BLACK, a popular and venerable authority, seldom makes a second application to destroy a pulp, and his patients rarely experience pain during the operation. "Having made," he says, "a free exposure so that I can see it, I touch the exposed portion with pure carbolic acid; then take a piece of crystal arsenic, and with a knife or instrument scrape a very little of it into powder. I then twist a piece of cotton, the size of a pin-head, on a smooth nerve-instrument so loosely that it is easily detached, moisten it with carbolic acid, and take up as much of the arsenic as will adhere to it, and place it on the exposed pulp, but without any pressure. I then place a small concave metal dish over it in such a manner that it rests on the walls of the cavity and effectually prevents any pressure on the nerve; then fill carefully with gutta-percha. If there is no pressure on the nerve, you will have no pain. If there is pressure, you will hear from it at once, which means remove and start again."

EDITOR ITEMS :—You published in ITEMS OF INTEREST for October, and also appeared in December number, the following—

R.—Cocaine hydrochlorate..... gr. 20.
 Sulphate of atropia..... gr. $\frac{1}{10}$.
 Carbolic acid (crys.)..... gr. 10.
 Chloral hydrate..... gr. 5.

Add one ounce of distilled water.

—for painless extraction of teeth (extract from Western journal), the doctor who gave it having claimed to have used it sixty times without any bad after-effects. I have used it about eight or ten times, and after every case, except one, the face swelled considerably, and to-day I heard from a lady patient who said her face had swelled to twice its original size. The patients complain of no pain, however, when the teeth are being extracted. I write to know whether any of my brother practitioners have given it a trial, and with what success, or whether the fault lies with me. I have followed directions given as near as I know how.

Young Dentist.

Our Question Box.

WITH REPLIES FROM OUR BEST AUTHORITIES ON DENTISTRY.

[Address all questions for this department to DR. E. N. FRANCIS, Uvalde, Texas.]

Question 4. *A lady, sixty years of age, had several teeth (the last in her mouth) extracted from the lower maxilla, eighteen months ago. Her gums are to all appearances healthy, except being rather anemic, and those places corresponding to the lost teeth are sensitive—even the tongue coming in contact with them causes pain, and that organ is similarly affected on that portion coming in contact with the gums. Patient has frequent headache, and there is considerable sensitiveness in the region of mental foramen. What the cause and treatment?*

I think this case a neurosis of the inferior maxillary nerve, caused by extracting the teeth—possibly by small portions of the roots being left in the process, and the disturbed condition of the nerves having caused faulty circulation, explains the anemic appearance of gums. The tongue is effected by reflex action. For treatment, I would advise a good nerve tonic, strichnia, iron, etc.; listerine and warm water locally.

Frank H. Harris, Harrisonburg, Va.

I should say, the cause was largely constitutional, together with the present inability to properly masticate and insalivate the food. Treatment would consist in supplying the lost organs, preferably with gold or continuous gum work. Build up the system. I can imagine cases in which a conviction of the superiority of mind over matter would be the chief factor in establishing a healthy condition. *Geo. C. Ainsworth, Boston, Mass.*

From lack of nutrition the normal condition of the nerve may be affected, and from the same cause the bony deposit in the alveoli, where the teeth were taken out, may have been retarded, leaving the nerve insufficiently protected, causing pain from contact, and, in remote parts, through sympathy.

As a wash I would recommend the use of water, hot as can be borne in the mouth, three or four times a day; also, a nutritious diet and the use of therapeutical agents which will promote the general health.

B. L. Turner, Pittsford, Mich.

On account of the age of the patient, absorption of the alveolus takes place very slowly; and I think the trouble comes from constant irritation of the gum, caused by the sharp edges of the alveoli.

The tongue being sore, indicates the presence of some irritant, such as a piece of tooth or alveolus. I would make a very close examination, and if the alveolus is not absorbed, would trip it off with bone forceps. The headache is probably of a nervous character, and the pain in the region of mental foramen, of reflex nature.

H. W. Le Fevre, D.D.S., Hillsboro, Ohio.

This case needs to be investigated, and a careful history of the patient's general health considered by a practical physician, and suitable remedies

prescribed. Mechanically I treat a tender membrane by first securing two plaster casts of the mouth. On one make a set of teeth on rubber base, then with bur-engine drill a series of countersinks in the denture, and by means of a warm spatula force gutta-percha into them; laying over these about one-sixteenth of an inch of sheet gutta-percha, and forcing it into place by pressure on a warm plaster cast. You will have a set of teeth on rubber provided with soft gutta-percha cushion next the gum, which may be worn with the greatest comfort, and easily removed when worn out; although thus far I have not known any to wear out in a year's trial.

C. H. Land, Detroit, Mich.

Question 5. *A lady patient, twenty-two years of age, has fourteen gold fillings black as copper amalgam. She uses powder, but they will not remain bright over three hours. Gold jewelry of any kind discolors her skin similar to brass. What can be done?*

This I think is due to mercurialism. I have seen cohesive gold discolor, and in one case Abbey's soft foil, which I attributed to mercury. Treatment: Iodide of potassium—full doses.

Frank L. Harris.

The discoloration of gold fillings is probably due to the presence of sulphur or sulphuric acid in the secretions. Let the patient partake freely of milk, use prepared chalk as a dentifrice, and rub fillings with powdered pumice and chalk.

B. L. Turner.

I think the cause of black fillings is sulphur. The patient has a superabundance of sulphur in her system, and coming in contact with the gold fillings forms a sulphide of gold. Gold jewelry discolors skin by the exhalation of sulphur. I know of nothing to prevent fillings turning black.

H. W. Le Fevre, D.D.S.

May come from iron in artesian well water, metallic salts and drugs, or from close proximity to large amalgam fillings, due to galvanic action. The condition of saliva being the transmitting medium from which the deposition of matter will form on metallic surfaces. This, however, is theoretical, and needs a more thorough scientific investigation before a positive conclusion can be obtained.

C. H. Land.

The discoloration is probably due to the peculiar condition of the buccal fluids. Secretions from the minute follicles of the mucous membrane around the teeth are deposited upon the teeth, more particularly about their cervical borders and interstices. These deposits become stained with aliment, more or less of which is combined with the collections, and the teeth often become stained, the gold fillings tarnished.

Chas. E. Francis, New York City.

Question 6. *Will any reader of the "Items" tell a subscriber how to overcome the disagreeable rattle and click of an old woman's teeth? The case is a full upper and lower denture.*

I have no trouble with teeth rattling when I get a correct articulation.

B. L. Turner.

Have three or four of the back teeth formed of hard rubber on the grinding surface. *C. H. Land.*

I think the rattle and click is caused from the denture being loose. The remedy suggests itself. *H. W. Le Fevre, D.D.S.*

The teeth are not on dental line—see S. S. W. catalogue of porcelain teeth, page 40, plates Q and R. *Frank L. Harris.*

May be caused by ill-fitted or adjusted plates, or lack of knowledge and expertness in using them. Remedy: Be sure you are right in the first instance; the second rests entirely with the patient. *Geo. C. Ainsworth.*

The "click" referred to is usually due to malarticulation. The teeth or "bite" may be too long, or the molars may come together first in closing the mouth. If, however, the articulation is perfect and teeth still click, grind grooves across the grinding surface of the molars in such a manner as to retain a surface of vulcanized rubber. *Chas. E. Francis.*

DECAY OF BONE IN THE MOUTH.

TO THE EDITOR OF "THE SCIENTIFIC AMERICAN":—While rolling the broken-off head of a bone collar-button in my mouth it fell into a hollow tooth. As it closed the tooth effectually, it was left there for about two months, when it was found to be tough and glue-like in appearance, like bone treated with sulphuric acid, thus showing the effect a decayed tooth has on the others.

F. E. B., South Bethlehem, Pa.

MEDICINAL QUALITIES OF NUTMEGS.—The *Medical Bulletin* says: "The medicinal qualities of nutmegs are worthy of considerable attention on account of their value in the treatment of diarrhea, many cases quickly yielding to the administration of $\frac{1}{2}$ a dram in milk. Insomnia may be effectually relieved by them when opium fails and chloral is not advisable. It is also a sedative in delirium tremens, and can be given with safety and marked benefit. An excellent ointment for itching and irritable hemorrhoids is composed of 2 drams of powdered nutmegs, 1 dram of tannic acid, and 1 ounce of lard."

—National Druggist.

The inventors claim that surfaces of aluminum may be successfully soldered to each other, and to other metallic surfaces, by using silver chloride as a flux in conjunction with ordinary solder.

The pieces of metal, one or both of which are aluminum, are placed in the relative position required in the joint, finely powdered fused silver chloride spread along the line of junction, and solder melted on with a blowpipe or other device. The joints are thus easily and rapidly obtained, and become hard and perfectly sound on setting, and neither crack, flake, nor check.

F. J. Page and H. A. Anderson, Waterbury, Conn.

For Our Patients.

WHICH IS THE WEALTHIER?

Cleon hath a million acres,
 Ne'er a one have I ;
 Cleon dwelleth in a palace,
 In a cottage, I.
 Cleon hath a dozen fortunes,
 Not a penny, I ;
 Yet the poorer of the twain is
 Cleon, and not I.

Cleon, true, possesseth acres,
 But the landscape, I ;
 Half the charms to me it yieldeth,
 Money cannot buy.
 Cleon harbors sloth and dullness,
 Freshening vigor, I ;
 He in velvet, I in fustian,
 Richer man am I.

Cleon is a slave to grandeur,
 Free as thought am I ;
 Cleon fees a score of doctors,
 Need of none have I.
 Wealth surrounded, care environed,
 Cleon fears to die ;
 Death may come, he'll find me ready ;
 Happier man am I.

Cleon sees no charm in nature,
 In the daisy, I ;
 Cleon hears no anthem singing
 In the sea and sky ;
 Nature sings to me forever,
 Earnest listener, I ;
 State for state, with all attendants,
 Who would change ?—not I.—*Charles Mackay.*

WHY SUCH A DIFFERENCE?

An exchange says: "The English or American child who leaves the primary schools to go to work can read a little, spell less, write a bad hand, ugly and illegible, and do a small amount of simple figuring. The child who leaves the primary grade of school in any continental city of Europe, reads, writes and spells, and has a fair knowledge of arithmetic. In addition to these it is familiar

with woods, their properties and uses, and the tools with which they are made useful; with clay or putty or wax, in which it has been modeling all sorts of things, thus developing its senses and making to know the value of faculties for designing things. It can draw as well as write. The child who leaves the primary grade in our cities is qualified to become a cash boy or cash girl in stores; to do the lowest and least paid work in factories, and to be added to the number of victims in sweaters' dens or to run errands. The child who has left the primary school on the European continent is qualified to take up the work of any constructive craft, and to make a beginning as apprentice in the best and most profitable arts."

Why this difference? Are English and American children deficient in reason and quickness of apprehension? By no means. Under the same conditions they would equal or exceed the children of any nation. But they are handicapped by having to master our outrageous orthography, which sets all reason at defiance. The years they pass in the primary departments are chiefly spent in learning to read and spell. Little or no time is left for giving other instruction, and the result is as stated above. Children who leave the primary department of our schools, as a rule, have not sufficient education to become more than drudges, or perform other than mere mechanical service.

DULLARD.—So, old man Richly is dead at last.

Brightly.—I wonder he lived so long with all the doctors. Why, Dr. Scalpel had a hack at him, Dr. Philler had a hack at him, and a dozen others.

Dullard.—And now the undertaker has him.

Brightly.—Yes, by gum! and he's the worst. He got seven hacks and a hearse at him.

—*Lowell Citizen.*

A NOTED English bishop had for years nursed the fear that he would some day become paralyzed. On one occasion, at a dinner, he suddenly interrupted the guests at table by exclaiming that his worst fears had been realized at last; that he was paralyzed in his right lower limb; that he had been pinching his thighs for some minutes and was unable to detect the slightest feeling. A lady sitting next to him assured him that he was mistaken, for it was her limb he had been pinching instead of his, the silk of the lady's dress being difficult to detect from the silk of the bishop's robe. He was cured.

—*Harper's Monthly.*

Current Notes.

FULL many a man, both young and old,
Is sent to his sarcophagus,
By pouring water, icy cold,
A-down his warm esophagus.

It is estimated that 1800 pounds of gold are annually used for dental purposes in this country.

James Corcoran, of Boston, who swallowed his false teeth, and on whom an unsuccessful operation was performed, is dead.

Fred. D. Miller, 14 years of age, died at Long Island City yesterday, of heart disease resulting from excessive cigarette smoking.

Dr. Frank A. Knowlton, of Fairfield, Maine, says, for a year he has used powdered pumice for molding sand, with gratifying results.

The *St. Louis* still keeps up a good interest in its monthly meetings. We judge from the names prominent in it that it is decidedly popular and useful.

The Maine dental law seems to be working very nicely. During the first three months the law gives all dentists in the State the privilege to register; 303 complied. All dentists after this date, and all new-comers must pass examination before the State Board.

A beautiful contour filling is a failure if the patient be sent home in a hack to suffer for days or weeks from nervous shock, and there are more martyrs to such misdirected zeal than we are wont to think. Said a lady to me, as she took a seat in my operating chair, "I have been warned by my physician to give vent to my feelings, to knock over your instruments if I please in the hope that I may this time escape a painful illness such as I have formerly experienced consequent on the intense nervous strain due to the effort at self-control."

"THE DENTAL COSMOS," say the publishers in a recent special notice, "claims to be *de facto* the independent dental journal, and it requires but a brief comparison of its pages with those of other periodicals to substantiate the claim." Independent in what? The publishers seem to feel exercised about something, or why this boast?

Never make sport of suffering. It is hard enough to be obliged to endure it; it is harder where there is no sympathy; it is still harder where it is made light of. Such heartlessness under dental operations may be suffered in silence, but that silence is the silence of indignant resentment, which will bring future loss to the cruel dentist. If we would have patients advertise us favorably and return to us, we must treat them with consideration and respect. If they must be hurt, they can at least claim our sympathy and consideration. Even this may be said in silence. Our manners, our very looks and conduct, may speak more sincere sympathy than words. Gentleness, careful, gentle delicacy, is not inconsistent with thoroughness.

Outside of purely scientific questions, says Dr. Crawford, dental legislation is the most important to discuss to-day. In regard to the statement that the people are demanding protection from dental charlatans, I don't think the people en masse are especially interested. The fact is there are not to-day enough duly qualified dentists to serve the people as they ought to be. As to the standing of the profession, no profession is more respected, and its schools will take as high if not better rank than the medical schools. No State should pass a law compelling its examining board to examine the graduates of every school, but the board should be entitled to register the graduates of schools maintaining a proper standard of qualification. The legislature of Tennessee, to a man, when interviewed, expressed the opinion that all reputable colleges should be recognized.

A NOVEL LIGHT.

Says a correspondent: "Put some heated olive oil into a small bottle, drop in a piece of phosphorus, cork it up securely and put it in a safe place. Any time the cork is removed for a few seconds and then replaced, a powerful light will be given out by the bottle, which will last several minutes, and be again renewed at any moment by pulling out the cork. A more convenient device for finding a house or number in a street where there are no lights could scarcely be devised, as it will give off its light on the stormiest night, and if it gets out of order can always be got into shape again by aid of a little warmth. The mixture once prepared will last for some weeks with but a reasonable amount of care."

—*New York Tribune.*

I know a skilful dentist who is gradually losing a large business by being crotchety and surly. He is so crabbed some women are afraid of him, and many men will not endure his offensive ways. His self-important and independent manners, his egotism and self-opinionated foolishness, are becoming his ruin. He is only fifty-five, and yet by these offensive ways he is losing hold of a splendid business, a generous income and an extensive influence. He is too blind to see his faults, and too big and pig-headed to be instructed.

Gage the temperature of your office by a thermometer, not by your feelings. Seventy is a good standard of warmth. Neither trust yourself to judge of the purity of the atmosphere, but be sure of a free circulation of the air continually. It will cost you a little more fuel in the winter, but your healthfulness and your patient's appreciation will more than compensate. Especially on first entering in the morning, and on dismissing your last patient in the evening, open the windows to flood the rooms with the purest of air. If this is done also at noon, so much the better.

Goodness is the highest possible attainment. Titles, honors, wealth, position, popularity, gifts, skill, knowledge, all these are nothing in comparison with goodness. A good conscience, a pure heart, an upright life are more to be desired than all things else. Yet nothing is more neglected than goodness. Not only base and wicked man, but business men and politicians who have a code of morals of their own to which they adhere with great tenacity, smile at the proposition to introduce the principles of the Ten Commandments and the Sermon on the Mount into the common affairs of life, claiming that these would make success impossible. But that gain which is secured at the expense of one of these principles is the heaviest loss.

John Mitchell, of Twelfth and Fitzwater streets, Philadelphia, a dealer in cigars and tobacco, was held in \$500 bail by Magistrate Kane, on the charge of selling cigarets to boys under 16 years of age, in violation of an Act of Assembly. The arrest was instigated by Policeman Carroll, of the Second Street Police Station, who testified that his son Charles and John Burton, of Leonard street, had bought cigarets of Mitchell in his presence. Carroll said that the teachers of the school, where his son attended, complained daily of the injurious effect that cigarets had on their scholars. Carroll also testified that "his son was nearly crazy from the use of cigarets, and was unable to study or do anything at all, after smoking them."

Editorial.

THE GRIP.

It is an unfortunate circumstance that one of the most widespread epidemics which ever visited the human race, should have a name that brings it into ridicule as something trifling, and a name that is an entire misnomer to its character. We refer to the mysterious attack on the mucous surfaces called the grip. Men and women have been stricken down all about us. We could hardly hear of the attack before they were buried. And if they linger—what torture! And if they recover—what a multitude of secondary diseases it aggravates or produces. And yet men smile when you say you have the grip.

The name conveys but a little idea of its character. In some, this disease produces cramp worse than rheumatism, gripe worse than colic, and spasms worse than fits; but these are only a few of its phases, and not the worst and most fatal. Its chief characteristic may be a complete nervous prostration, a violent disorganization of the mucous surfaces of head or lungs, or such a general sinking as to cause heart failure by collapse. And what else? Say what it is not. Nearly always coming suddenly, it does not give the least warning where it will strike, or how; nor how rapidly it will fly from one part to another, nor how suddenly it will strike the fatal blow; or, if that is averted, what legacy it may leave behind that must be carried as long as life shall last.

"Well, I do believe I have caught cold," said I, only a cold, and yet in an hour we were swelling and puffing and struggling with all the symptoms of an influenza; and, in three hours, our whole frame was in congestion and complete nervous prostration. The lungs were so laboring for room and so filled with a thick, stiffling mucus that we were wild. We were burning with heat, yet shaking with chills, inflamed in every part, yet dripping with cold perspiration.

I am satisfied. Let him that laughs at the grip be the next victim in a very mild form. We wish him only a taste of it; not the three weeks of torture we have had.

GETTING SOMETHING FOR NOTHING.

It is seldom done. Patients often try it, but we and they generally get cheated. Everything worth having has its price, and we had better pay its price than beg it.

After some filling, my patient said :

“Now just clean my teeth a little.”

And, of course, but little was done, though they should have had careful, delicate, thorough treatment. If I had made a charge, I should have spent an hour or an hour and a half at it. Yet, some patients think it should be done for nothing. Such persons never know what it is to have their teeth cleaned, unless we can put the expense on some other part of our work. None of us really do much for nothing—not even those of us who want others to do it for us.

“Doctor,” said a well-to-do business man, “I suppose you don’t charge for extracting, when you do filling?”

I was really glad I had not yet given him the price of the two fillings I had put in. So I replied :

“Sometimes I say nothing about extracting, when I do filling. What teeth do you want out?”

“The two lower wisdom teeth. They are all broken down, and they have troubled me much; but I thought I’d not have them out till I had some filling to do.”

The filling without the extracting would have been four dollars. Did I do wrong in charging him five? I believe it would have been more honorable to have been frank with him, and yet it is a great temptation to make the sum of our charge according to the time and work we spend.

Even a dentist sometimes likes to get from a fellow-dentist something for nothing. We argue :

“He is of the same craft. Of course he will not charge me for looking over my teeth, and doing the little they may need.”

Better take along your purse, and not let him know you are a dentist; or, if he does know you, better tell him beforehand you prefer paying him his usual prices, for what he may find to do.

We are, none of us, mercenary; of course not. We work for the love of it, and for the honor of our profession; yet, somehow, we like to have our bread and butter thrown in, and sometimes, a gold piece for our wife. None of us like to get nothing for something; and if we can help ourselves, we do not like to give something for nothing.

There are times when, "if you will tickle me, I will tickle you." But this operation of digging and gouging, and scratch and scraping, and sawing and cutting, and burring and boring, and then of whacking and thumping, and jamming and pounding,—all on a poor, frail, sensitive, helpless, sore tooth, *in our own head*, and that head gagged and forced into an iron head-piece, and rolled and pressed, and thrown this way and that way, and jammed and knocked about, till the very brains seem to be coming out in sounds of thunder from the ears, in lightning from the eyes, and in a deluge from the mouth,—is not tickling.

The dentist who does little things for nothing, finds the custom so grows on him that it demoralizes his business. He gradually goes from manipulations that are trifling to include longer operations, till his time is much spent in gratuitous work. He thus not only does injustice to his own business, but to the practice of fellow-dentists, for patients soon expect all to do what one will.

At one time in our practice, this custom had so grown among the dentists of our neighborhood, and was so demoralizing our own practice, that we resolved to break it up, so far as our work was concerned, at least. We made a blank chart of particulars of the various phases of our work, with charges for each specific operation. We made an estimate of cost for each patient before operating, with the distinct understanding that we might have to vary in some things, and might find work not then discovered. There was no room left for gratuitous work; and we explained that the reason we did this was because it had become so much the custom of some dentists to do some work without charge, and put the expense on other work, that it had become unsatisfactory to both dentist and patient. It worked so well that we kept it up for many years, and found it a source of profit to ourselves and satisfaction to our patients.

GENIUS FOR SOMETHING.

How many have genius without knowing it. They stumble along, sucking their fingers, wondering at the skill and tact and productions of heaven's favorites about them, while they are left to struggle on in obscurity and scantiness. They never dream that they, too, might succeed, if they once waked up the wily genius within them, and followed where he led. It may not be where I ought to go, it may not be where you ought to go; but, it will be the very nitch Providence has designed for them. In my place they might be a failure, in your place they might be like a fish in strange water; but in their own place they would be almost sure to be lords of all they surveyed.

Yet, many, oh so many, many mope along; nid, nod, nodding, wasting time and opportunities, deaf to every call to their life work, foolishly expecting something to turn up without their help. Such persons never amount to much, unless brought by some terrible experience where they must either save themselves or die.

We have all been astonished at the genius of even half idiots in some unexpected direction, brought out by some unusual circumstance; and we have seen men of good parts, become lazy, seedy, drunken vagabonds by dissipation and neglect. But even some of these will suddenly rouse themselves by wonderful effort to honor and renown. We have seen a mere fortuitous circumstance arouse a prodigal to become a genius.

Blind Tom was a fool in every thing but music.

I once knew a specially successful physician, who imagined himself a candidate for the presidency of the United States—a standing candidate—and every four years he was elected, though cheated in the count. He had many other eccentricities that made him unreliable and irresponsible in every thing but in his wonderful diagnosis, prognosis and treatment of disease.

A man was kicked out of his back door by his wife, as an incorrigibly lazy, good-for-nothing drunkard. He sat down on the ash-barrel and came to his senses. He could whittle, at any rate; and to whittling he went. He whittled out a toy that became the nucleus of a successful business. His extremity reformed him, and

made him a man among men. Large classes of machine-made toys found in our toy stores are made by him.

A shiftless farmer, on his way to the fish pond, saw a little trout trying to climb up a water-fall that led into a stream going through his marshy field, between two hills. He thought, "Why not help the little fellow and others like him?" He dammed the stream, and made a beautiful lake. He caught thousands of little trouts and put them into it. It became noted for its abundance of trout, and for the pleasure and wealth it brought him. He had been a failure as a farmer, and for every thing else but fishing, and his love for this made him a genius in propagating them.

We all have a genius for some thing; let us find out what that is. We may be a failure in every thing else; but in that for which we have a genius, we shall be a success. What is it?

"At the prices I get," said one dentist to another, "I can't afford to do such work as you turn out."

"At the prices I get, said the other, "I can't afford to do such work as you do; I could not get my prices, and I would demoralize my business. I do every thing as well as it is possible to do it, and then charge accordingly. But, tell me, why do you not do such work as I do and get my prices?"

"I can't make people believe my work is worth such prices as you get."

"But you admit you don't do such work; and, therefore, how do you know that your patients would not be willing to pay first-class prices for first-class work? In fact, how do you know you could do such work?"

"Oh, I think I could do it if I tried."

"You certainly are to blame for not doing your best, and you are not alone in your blameworthiness."

"I haven't the gift of gab you have, nor the fine surroundings, nor the rich, esthetic class of patients to cater to, that you have."

"There are only two things that mainly determine the market price of our time and work. First, your estimate of it; and second,

its intrinsic value. There are dentists who injure their business by too highly estimating its value, or by thinking a high price will mean to their customers a high grade of work; others put their prices too low, because they have not sufficient faith in their ability, or they are too anxious for work, or when much work comes they gradually lower the standard of its quality. The greatest mistake a dentist can make is in not constantly doing the very best he can. Even this may not be the best another can do. It may not be in him. Then he must be content with corresponding prices. The public are better judges of the quality of work than some of us give them credit for. It is not blarney that wins, but good work."

There is one thing that makes up for nearly every defect of natural capacity and business qualities, counteracts nearly every disappointment and loss, uses nearly every mistake and blunder, and largely takes the place of genius. This is enterprise.

Though the intellectual faculties may be quite ordinary, this will so arouse them as to give wonderful efficiency. Though the passions may be weak and ambition sluggish, the will dormant and faith faint, an infusion of enterprise will so set the whole man in motion that he will go through the world a fire-brand of power.

Of course enterprise is not a mere passion to burn, but, also, a light to direct; it is not mere zeal without knowledge, but inspiration imparting wisdom and skill; it is not a mere impulse, directing our plans, but deliberation put in motion, calculation seizing on possibilities, watchfulness having a thousand eyes, method, sagacity, thrift, that transforms each act into a well-placed stone in the mansion we are building.

Many a dentist is poor through lack of enterprise. There is business enough within his reach for a dozen dentists, but he does not reach out for it. There is money enough in the pockets of those who need his work, but he does not arouse them to its importance. He is not wide-awake, aggressive, and persistent; and, it may be, too lazy to properly prepare himself to merit success.